

# Contents May 1920



VOL. XXV, No. 5

When the Chasers Worked.....	7-8
Perils of Ali-Baba.....	9-10
Curtiss Scooter.....	11
Guinivere, a New Diesel Electric Yacht	12
Shawnee III, a Fast Scripps-Powered Boat.....	13
You'll Know at a Glance.....	14-15
No. 7, Useful Compass Courses, Block Island to Vineyard Sound Including Narragansett Bay.....	16
Good Will Going to California.....	17
Hoosier's Remarkable Record.....	18
Twenty-Six-Foot Sea Sled Hall-Scott-Powered Makes 47 M.P.H. in Trials	19
International Thirty-Two's a Success..	20
Roomy 38-Foot Cruiser.....	21
Southern V-Bottom Cruiser.....	21
A Motor That Is Different.....	22
Small Motor Boats, Their Care, Construction and Equipment.....	23-27
Prize Question No. 1: How to Provide Additional Sleeping Accommodations.....	23-24
Prize Question No. 2: Most Popular Fastenings for Small Boats..	24-25
Prize Question No. 3: Proper Rudder for the Motor Boat.....	26-27
You Can Increase the Speed of Your Boat.....	28
Tern, a 32-Foot Yawl-Rig Motor Boat	29-30
Boat.....	29-30
Zenith, a Hand 25-Foot Cruiser.....	31-35
The Way We Would Do It.....	36-37
Handicap Cruiser Championship of North America.....	38
Great Possibilities in Rebuilt Motors..	39
Volante, Wins Ideal Auxiliary Contest.	40
New Things for Motor Boatmen.....	41
Yard and Shop.....	42

This number of MoToR BOATiNG should be particularly interesting to the small-boat man, as there are several features in this issue which cannot fail to appeal. W. H. Hand, Jr., has designed a speedy, roomy 25-foot cruiser for us, plans of which are published in full on pages 31-35. If you are interested in an auxiliary don't fail to carefully examine the plans of Tern on pages 29 and 30 and Volante on page 40. We're just going to mention here the new department on pages 36 and 37 which we have called "The Way We Would Do It." No other boating paper has even attempted to handle and answer the questions sent in by readers this way. Our advice is to turn to these two pages first.

MoToR BOATiNG, 119 West 40th St., New York, N. Y. William Randolph Hearst, President; Joseph A. Moore, Vice-President and Treasurer; Ray Long, Vice-President; W. G. Langdon, Secretary. Copyright, 1920, by International Magazine Co. Telephone Bryant 6000; Western Office; Hearst Building, Chicago, Ill. Published monthly by International Magazine Co. Trade Mark registered. Single copies, 25 cents; yearly subscription price, \$3.00; foreign postage, \$1.00 additional; Canada, postage 50 cents.

When writing to advertisers please mention MoToR BOATiNG, the National Magazine of Motor Boating



## "NORMA" PRECISION BALL BEARINGS (PATENTED)

The majority may not always rule—but its concerted judgment is quite apt to be correct. By far the great majority of high-grade magnetos and lighting generators are "NORMA" equipped. Which indicates a striking unanimity of opinion among manufacturers who place serviceability before price. And the performance of their machines justifies their judgment in standardizing on "NORMA" Bearings.

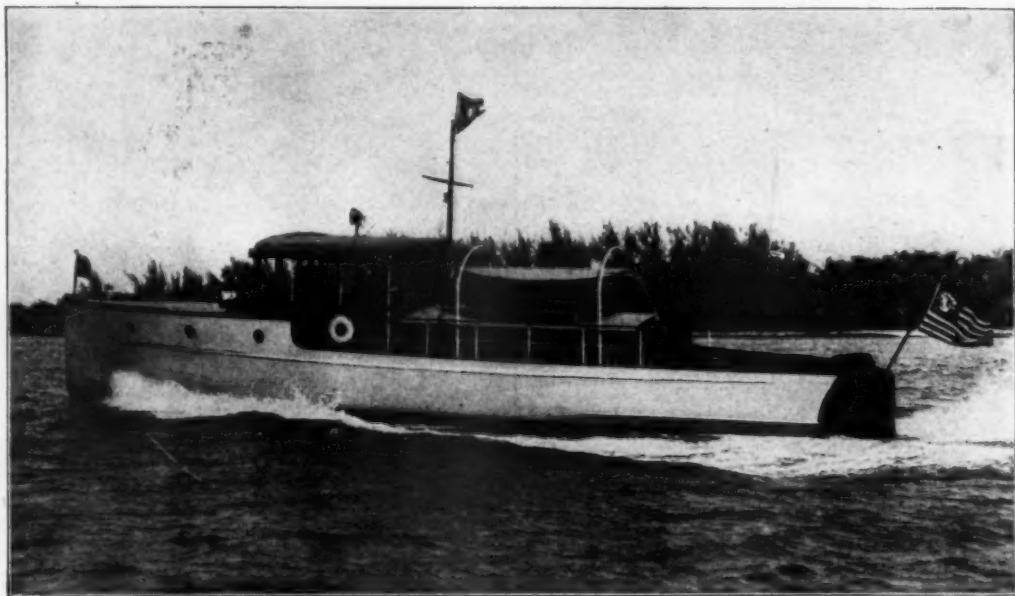
See that your electrical apparatus is "NORMA" equipped.

## THE NORMA COMPANY OF AMERICA

Anable Avenue  
Long Island City  
New York



Ball, Roller, Thrust and Combination Bearings



54-FOOTER—1920 MODEL

## Great Lakes Express Cruisers

The 54-footer, the 1920 standardized model, is the finest and most luxurious cruiser obtainable. The cabins are done in mahogany throughout and provided with art glass panel doors, beveled plate glass mirrors, imported broadcloth upholstery, velvet rugs and silk hangings.

A cruiser of most striking appearance, with a turn of speed of 20 miles an hour or more.

A cruiser that affords accommodations for a party of eight and a crew of two; and completely equipped in every respect, ready for operation.

*Wire or write for Catalogue No. 323.*



**GREAT LAKES BOAT BUILDING CORPORATION**  
**Milwaukee, Wisconsin**

*Largest Builders of Express Cruisers in America.*

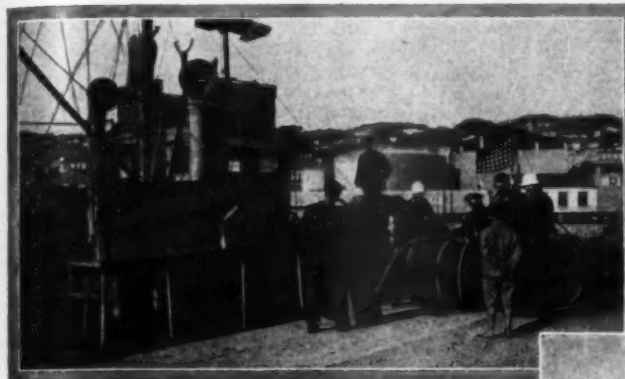
*Also Designers and Builders of Boats of Distinction and Quality to Individual Specifications.*



# When the Chasers Worked

Commercial Uses for Which the Navy's Fighting Motor Boats Were Adapted After the Conclusion of Hostilities—Wireless Their Most Valued Article of Equipment

By Alfred F. Loomis



*Loading gasoline from drums*

THAT the 110-foot submarine chasers would be commercially useful was never contemplated by the designers of these efficient motor boats; and when the world war ended, less than six months after the chasers had arrived at the zone of operations, it seemed to the crews manning them that a season of glorious repose was in store for us. But it developed some time between the morning and the evening of November 11 that the chasers had only entered upon their period of usefulness. All the work accomplished prior to that date was in the nature of training for the important missions to come. If they had demolished submarines in the war they were now to explode a bomb under the pretensions of the Italians along the Dalmatian coast; if their crews had injured themselves to hardships and come to look unmoved on the sufferings of drowning German sailors, it was so that they might be fortified against the piteous sight of a Red Cross Commission enduring the agonies of seasickness on a calm day in the Aegean Sea.

These little craft were to be employed for the purpose of displaying the American flag in places where it had long been cherished by the natives but had never before been flown from the staff of an American naval vessel. And, by contrast with the lofty nature of such a duty, they were also to carry admirals' laundry from flagship to landing or distribute woolen socks among the starving Armenians. If a job came up that was a little too large for a running boat to handle, such as

conveying a couple of hundred shipweary doughboys to dry land for a hike, one of the chasers was ordered to perform the duty. And if the services of a monitor were required as station ship in some important enemy port, a chaser was assigned to the post in her stead. In short, the amazed crews of the 110-footers learned that with the signing of the armistice they had become the most useful vessels in the Navy. They were expected to perform any job that was too big or too little, too commonplace or too exalted, too pleasant or too uncomfortable for any other ship in the service. And, needless to say, they did what was expected of them.

Perhaps the most considerable post-war service of



*Three chasers moored stern on at Gallipoli*

the chasers was rendered in connection with sweeping up the mines of the North Sea barrage, but the work of the Adriatic chasers in alleviating the suffering of impoverished peoples of southeastern Europe was also important, from a humanitarian point of view. The one was military duty, the other commercial, but both proved the adaptability of the little craft. Less than a month after the armistice six chasers were despatched from Spalato to Piraeus, Greece, to assist the American Red Cross, which was already established in Athens, in making a survey of conditions among the poor in the Grecian archipelago, and to transport food and supplies in cases of extreme urgency. Later they were ordered to Constantinople for similar duties.

In January of last year, when the remaining thirty of the Adriatic chasers were fitting out in Malta for their



*SC 131 lying between two Italian trawlers*



*Submarine chaser at sea*



*Chipping the rust off the towing band*

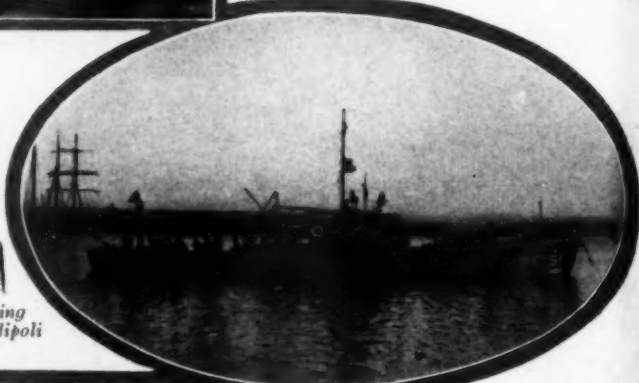
homeward voyage their number, was diminished by three to provide station ships at the Dalmatian ports of Cattaro and Spalato, and at Trieste, and the crews of twenty-seven chasers gave a unisonal sigh of relief when the trio was selected and ordered on its way. Two months later, when we had completed a liberty cruise of the Western Mediterranean and were awaiting orders at Gibraltar, the axe descended again and another unit was cut out of the flotilla and ordered back to the Adriatic. This time there were oaths and lamentations on the 131, to which I was attached, and on two other chasers; our fore-castles were draped in black and an aura of burning sulphur and brimstone crowned the engineers' quarters. Gloom dripped from the stanchions and we cut up our homeward-bound pennant and gave it the deep six.

Nevertheless, when we arrived ten days later in the little harbor at Gallipoli, Italy, we found that the work for which we had been recalled looked interesting and were somewhat reconciled to our detention in Europe. At this time the Government was sending large quantities of American flour to the Czechs and Jugo-Slavs and routing the ships through the Mediterranean and up the Adriatic among mine fields that were the more dangerous because their effectiveness and boundaries were not fully known to the Allies. Some of the areas marked as dangerous were in fact quite safe for navigation, but occasionally a Greek merchantman, disregarding the advice of the Italians, proceeded blithely across the shaded patches of his chart and went to join the shades of his worthy ancestors on the heights of Mount Olympus.

It was for the purpose of protecting our own shipping from the hazards of the mine fields that the chasers were detailed to the Adriatic, and the duties of the 131 consisted

of meeting Shipping Board vessels at the entrance of the Adriatic, placing aboard them Italian pilots who knew the safe courses, and providing their captains with orders and local information. Prior to our arrival both incoming and outgoing ships had been obliged to enter the harbor of Gallipoli by a wide detour around a mine field, and in so doing lose time which in demurrage alone cost our Government fully \$3,000 a day per ship. This sum we saved the taxpayers on every ship we met, but one chaser was sufficient to handle the local needs, and the two others left shortly to perform similar service along the Dalmatian coast.

Our chief value to the Food Commission which was responsible for the dis-



*SC 151 clearing harbor at Gallipoli*



*Shore party of soldiers ready to be taken aboard ship in a chaser*

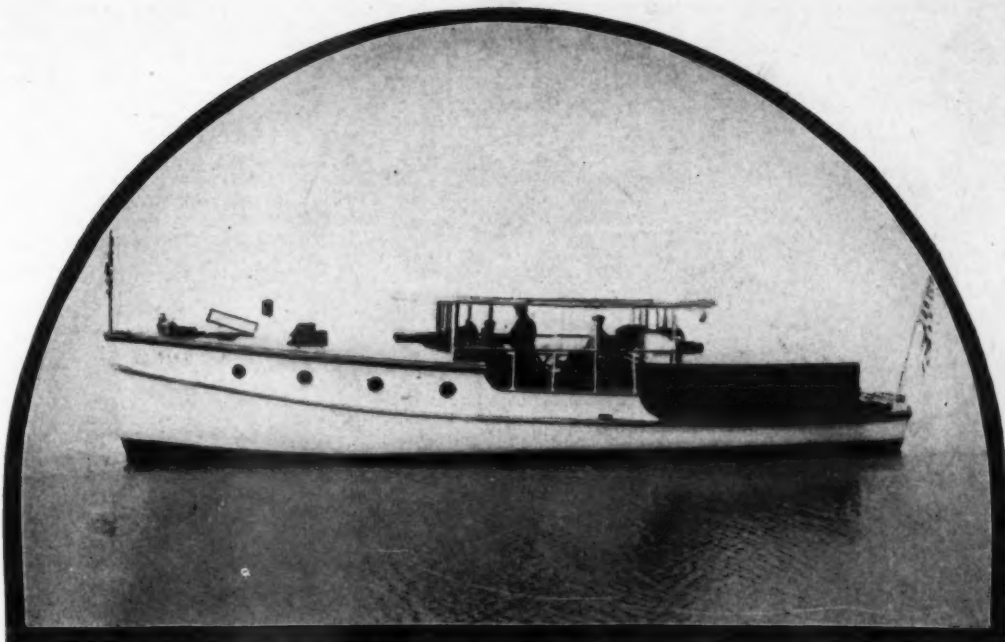
tribution of flour to the Czechs, lay in qualities inherent in the chaser—her comparatively shallow draft, her perfect seaworthiness, and her radio equipment. Before we arrived on the scene the American port officer at Gallipoli had been tendered the services of an Italian motoscafa with which to board incoming ships, but this little motorboat,

although powered with two excellent Italia engines which

*(Continued on page 78)*



*The Austrian naval base at Cattaro to which a chaser was sent as station ship*



*Ali-Baba at anchor in the Chesapeake*

## The Perils of Ali-Baba

A Cruise to Test the Sea-Going Qualities of a 42-Foot Cruiser Powered with a Fay & Bowen Motor

*By Capt. C. W. Dean*

ALI-BABA, named after the astute individual in the "Arabian Nights" who spied on the operations of the Forty Thieves, is not a revenue cutter, but a 42-foot bridge-deck cruiser owned by Dr. George W. Warren, of Washington, D. C. In her trial cruise in Chesapeake waters she endured perils that would have sickened the original Ali-Baba; but, thanks to luck, skill and the enthusiasm of her six-cylinder Fay & Bowen engine, she came through the ordeal with no ill effects.

The cruiser has a beam of 11 feet and a draft of 3 feet 8 inches. Her interior is laid out in the following manner: The forward cabin has two berths, lockers for clothes and a stand for the Victrola. Forward of it is the galley, with ice-box and lockers for dishes and cooking utensils. The bridge deck, which divides the forward from the after cabin is 9 feet long by 10 feet wide, and under it is installed the Model L-65, 45-75 h.p. Fay & Bowen motor. The engine compartment also contains two 100-gallon fuel tanks, a 20-gallon tank for cylinder oil, three storage batteries and lockers for tools. Fresh water tanks are installed beneath the deck and supply water to the galley forward and to the toilet in the compartment aft. In the after cabin there are two berths, toilet, lockers and a dressing-room. The hull was purchased locally and the cabins and interior work were designed by Dr. Warren. The decorative scheme for the cabins includes mahogany trim and white enamel ceilings and overhead.

The first engine in Ali-Baba was sold to Dr. Warren by myself, but as she was unsatisfactory in every particular, I soon replaced her with the Fay & Bowen which now furnishes her motive power. At the time the change in power plants was made I installed a 26x26-inch three-blade propeller, which gave the boat an eleven-mile speed. Later, upon recommendation of the engine manufacturers, this wheel was replaced by a 24x24-inch Ailsa-Craig Columbian wheel which, to the owner's surprise and delight, increased the speed three miles per hour.

When this installation had been made Dr. Warren decided upon a two-weeks' cruise to test out the sea-going qualities of his boat and motor and requested me to accompany him on the trip. At 1:20 of the ninth of August Ali-Baba turned her nose down the Potomac, having aboard the doctor and his wife, Dr. Warren's brother and myself. Our first destination was Piney Point, a distance of 90½ miles from Washington, and we planned to make it in two jumps, anchoring off Colonial Beach the first night. But we carried

a fair tide to Liverpool Point, which is about one-third of the distance, and we were making such good time on two-thirds throttle and one-half spark advance that we decided to push on after sun down. A bright moon aided our navigation, and at 10:05 we let go anchor one mile beyond Piney Point on Island Flats. We had covered 91½ miles in eight hours and three-quarters, and counted the 27½-mile run from Piney Point to our anchorage the most beautiful that



*Fishing was good*





*Captain and Mrs. Warren*

any of us had ever made on our trips.

With the phosphorus gleaming in the wake behind us, the moon shedding its mellow refulgence on river and shore, and with a slight head swell to give motion to our craft, we considered the conditions ideal for motor boating. During the whole of the run the engine never faltered, and its presence was only indicated to us by the slight humming from the muffler.

On the morning, which was Sunday, we went into Piney Point Dock to get fish-bait from a fisherman whom the doctor on his former trips had dubbed Sato. Sato, who knows all the fishing grounds in the neighborhood of St. George Island, agreed to pilot us to the best of these, and in a morning's sport we caught twenty-seven pounds of trout, spot, hard heads, and hog-fish. These gave us the essentials of an excellent Sunday dinner, and in the afternoon we put in again to Piney Point for a swim. Tying up here for the night, we spent a delightful night at this summer resort.

The next day we spent in fishing, bathing, and cruising around, and as part of our peregrinations we entered the Yeocomico River and took on gasoline near Kinsale. To our surprise the tanks would hold only fifty gallons, despite the fact that we had cruised for nine hours on Saturday and for parts of Sunday and Monday. It was then that I observed a pleasant smile on the face of the doctor, as he had expected to consume fully 100 gallons for this amount of cruising.

We anchored again for the night on the flats near St. George Island, and before turning in I noticed that the tide was low and that the rising moon had an angry look. Remembering the early teachings of my father, who used to say to look for squalls on a red rising moon at low water, I asked the doctor to secure the services of Sato to pilot us around the protected waters of the St. George River on Tuesday. Piney Point is open to southeast and northwest winds and is a bad place to be caught by a sudden and violent series of squalls.

So the next day, although the expected spell of weather did not materialize, the pilot did, and we cruised about and went out to Point Lookout where we caught 160 trout and fifty of other varieties. I had intended this day to



*The author receives an inspiration to write a cruise story*

and at daybreak of the following morning I gave the chain 25' feet more scope; but all went well until this time, although the wind had arisen and the rain was descending in torrents.

Just before breakfast we noticed that our position had shifted slightly and I let go the small anchor with 110 feet of three-inch line. But the wind increased in violence and we were dragging before the breakfast dishes had been put away. Going on deck, I tried in vain to haul in the small

*(Continued on page 58)*



*No wonder the cruise was a success*

## Curtiss Scooter

Developed As a By-Product of Aeronautical Experimental Work, These Scooters May Lead To Progress In Shallow Water Transportation



*Glenn H. Curtiss, prominent inventor in aeronautics, who has developed this novel Scooter*

**S**HALLOW-DRAFT motor boats have their sphere of usefulness as well as other types. For transportation services on tropical rivers which are long and shallow, infested with weeds and drift, nothing can surpass the shallow-draft boat except perhaps the airplane. As an approach to the airplane without any of the dangers incidental to flying, Glenn H. Curtiss has developed the novel form of shallow-draft motor boat which is illustrated herewith. This outfit is a by-product of work of an experimental nature along aeronautical lines. Studies are continually being made on propellers, engines, and numerous other items of airplane equipment. This Scooter is an offspring of these experiments and a very fertile field lies open before it. On a length of 30 feet, with a beam of 10 feet and a draft of only 3 inches when under way, this Scooter is easily capable of speeds in the neighborhood of 50 miles per hour.

Its power plant is a standard 400 h.p. Curtiss twelve-cylinder V-type aeronautic motor. Space within the cabin is provided for many persons, ten being accommodated without difficulty.

When resting quietly on the water the Scooter settles

*Photograph by Kadel & Herbert*



*When under way the Scooter moves at express train speeds*



*The Scooter at her moorings showing the air propeller and the lines of the hull forward*

down to a draft of eight inches. As the craft gets under motion this reduces to about three as mentioned before. It skims along on the surface of the water rather than through it.

The cabin is well able to protect the passengers from spray and weather while ample deck space is provided forward and aft which is suitable for such purposes as fishing or shooting as desired.

The possibilities for a craft of this type are many. Some form of modified hull with a less powerful motive power equipment would have a very wide range of usefulness for the transportation of goods and passengers on the large shallow rivers of the tropics. Large flat-bottomed barges which can carry many tons of weight on a few inches of draft are already being used in a few localities for freight and passenger service. Further experiment and study to develop the most suitable type of air propeller is perhaps necessary.

Other fields are open in high-speed boats for inland fresh water lakes. Many of these are overgrown with vegetable growths and a common type of water propeller would promptly cease to be of value. The air propeller on the contrary is independent of all these obstructions and its efficiency just as high.

Propeller efficiencies have been developed to a very high degree by the use of the wind tunnels in which all aeronautic propellers and models are tested. Further outdoor tests on full size propellers such as the Scooter is equipped with may still lead to further knowledge and progress.

# Guinivere, A New Diesel Electric Yacht

Another Installation of the Diesel Electric System of Propulsion to the Largest Type of Auxiliary Schooner Yacht

Photographs by  
Edwin Levick.



*Guinivere, the new 195-foot auxiliary schooner yacht*

**C**ONSIDERABLE interest was aroused by the description of the auxiliary schooner *Elfay* in a recent number of *MOTOR BOATING*. As a result of the very satisfactory service of this power plant Edgar Palmer has adopted a similar installation for his new yacht *Guinivere*.

This yacht will be the largest Diesel engine auxiliary schooner in the world. She was designed by A. Loring Swasey and the system of Diesel electric drive was worked out following suggestions made by Commander Fisher of the United States Navy.

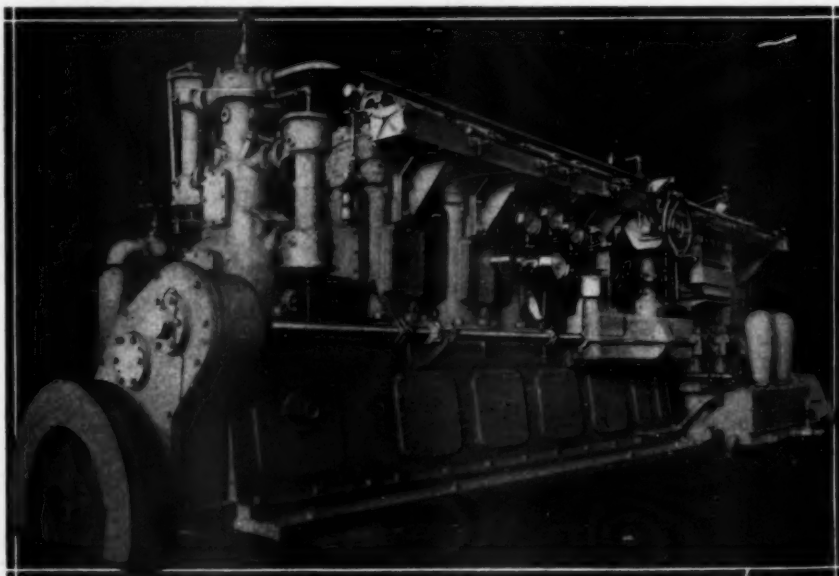
The power equipment carried by this yacht consists of a pair of Winton Diesel engines direct-connected to electric generators which in turn operate a driving motor and turn a large Bevis patent propeller. This gives the electric drive a better opportunity for efficiency. The ship can be driven by one generator at slightly reduced speed or both at full speed. Ample margin of safety is provided so that in case of repairs one unit alone is well able to handle the ship.

A comparison of the power equipment of this boat with that of its predecessor which was of about the same size is interesting. The old vessel had a Scotch boiler with quadruple expansion steam engine. She carried 160 tons of coal and had a cruising radius of 4,000 miles. The new installation carries 95 tons of oil which gives her a cruising radius of 11,000 miles besides requiring six men less in the engine-room, an appreciable saving in itself.

There is no necessity for a smoke stack as the exhaust is carried out at the stern below the waterline. The absence of boiler room trunk and stack is utilized to provide space for an additional deck house of roomy proportions.

The installation of this power plant has been worked out under the personal supervision of Alexander Winton of the Winton Engine Works and Wilfred Sykes of the Westinghouse Electric & Manufacturing Company. The construction of the hull has been entrusted to the George Lawley & Son Corporation and that the ensemble will be a masterpiece is a foregone conclusion.

Some of the principal items of the specifications are as follows: Length 195 feet; waterline length 150 feet; molded beam 32 feet 5 inches; draft 15 feet; displacement 642 tons; speed under power  $11\frac{1}{2}$  knots; propeller two-bladed and 8 feet 4 inches in diameter. The motors are a pair of six-cylinder 350 h.p. Winton Diesel oil engines with a bore of 13 inches and a stroke of 18 inches turning at 225 r.p.m. Each engine is directly connected to a 225 k.w. 125-volt Westinghouse shunt-wound generator. A 15 k.w. exciter is chain-driven and turns at 1,150 r.p.m. The motor which uses the energy from the generators is a 550 h.p. 250-volt Westinghouse located in the stern. The auxiliary equipment consists of a two-ton Clothel ice machine, a pair of 15 k.w. generators direct-connected to Quayle oil engines. All other auxiliary equipment such as bilge, fire,



*One of the pair of Winton six-cylinder, 350 h. p. Diesel oil engines, which comprise the power plant of Guinivere*

and service pumps, ventilating fans, sail hoists, winches, wireless, etc., are all operated electrically.

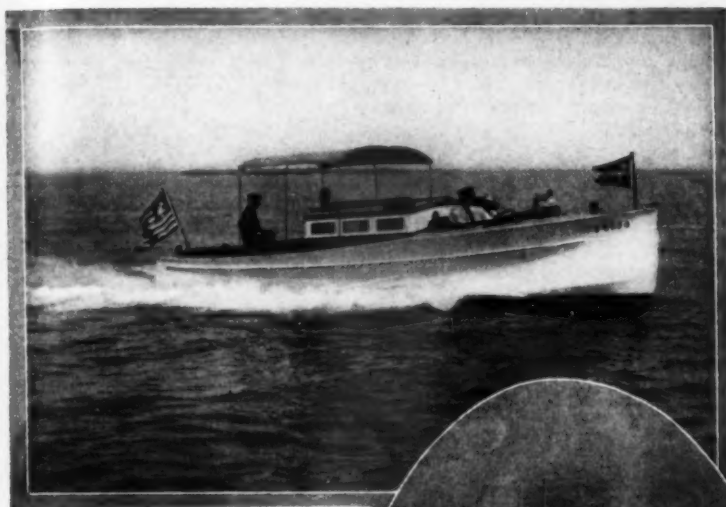
Under normal conditions the two generators are connected in series and furnish power to the motor. The motor speed from zero to maximum in either direction is controlled by means of a reversing rheostat which controls the excitation of both generators thus controlling the generator voltage and therefore the speed of the motor. All controls will be centered in the engine-room and directed by bell signals from the pilot house. The engine-room switchboard will be so arranged that power from the main motors can be utilized for the anchor winches should the demand exceed the capacity of the auxiliary generators.

This type of electric propulsion is becoming increasingly more popular, and is the ideal power plant.



# Shawnee III, a Fast Scripps-Powered Boat

Novel Arrangement of Engine Compartment Affords Ample Protection for the Scripps Motor, Together with Complete Accessibility



**A**MONG the recent designs from the board of that master of V-bottom craft is Shawnee III. Completed not long ago for Addison G. Fay, of New York and Useppa Island, Fla., Shawnee III embodies all that is new and novel in small V-bottom boat construction. Her design has been worked out for a particular service. What was required is that the boat be fast, comfortable and seaworthy. It is intended to use her for Florida sport fishing and it is reported that she lives up to her requirements in admirable fashion. She is one of the most successful boats yet produced for this port.

Her lines follow the conventional V-bottom runabout typical of Hand's designs. Her construction is very closely similar to these same runabouts. A striking point of difference, however, is the little cabin which completely encloses the motor. This little compartment protects the motor from all spray, moisture, and the weather, insuring a longer life and greater usefulness from the power plant. It is well known that engines completely enclosed in air-tight compartments without adequate ventilation will soon rust themselves up in a terrible manner. These objections do not hold here. The Model D-6 Scripps motor installed in Shawnee III is provided with very comfortable quarters in which it is enabled to render its best service.

The motor itself is the standard six-cylinder Scripps, of 60 to 75 h.p., with a bore and stroke of  $4\frac{1}{4} \times 6$  inches. A feature in these machines is the use of the Morse silent chain drive for the crankshaft and the accessory shaft. This insures absolutely quiet operation and an easily adjusted drive. The cylin-

ders are cast in pairs with detachable heads which allows of access to the piston tops for removing carbon.

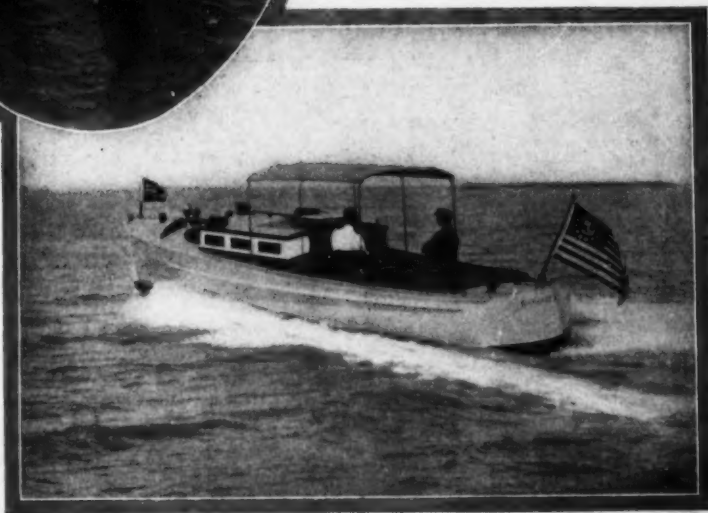
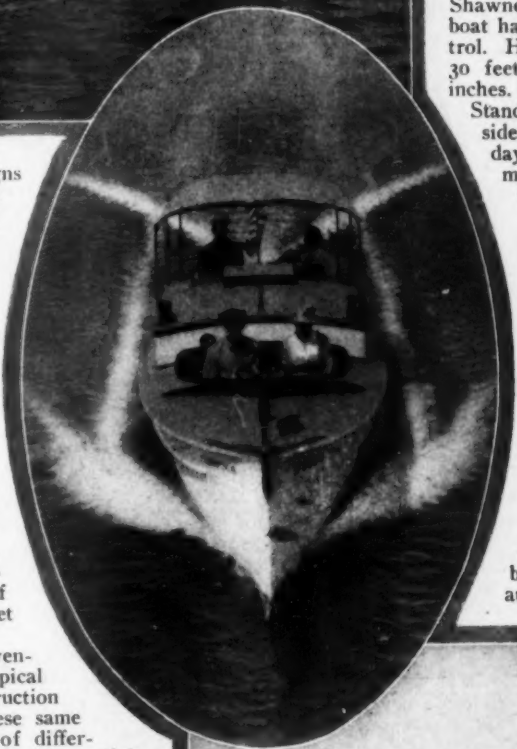
High pressure lubrication is used, the oil being driven by a bronze gear pump through the hollow crankshaft, to all bearings.

The reverse gear fitted is the Paragon, which has been built to Navy Department specifications.

The material used in the motor is of the highest grade throughout. Pistons are of special iron, special carbon steels, heat-treated, are used for connecting rods and crankshaft, as well as other parts which are required to last a long time.

Altogether, the combination assembled in Shawnee III is a most successful one. The boat has excellent speed and splendid control. Her principal dimensions are: Length 30 feet, beam 7 feet and draft 2 feet 7 inches.

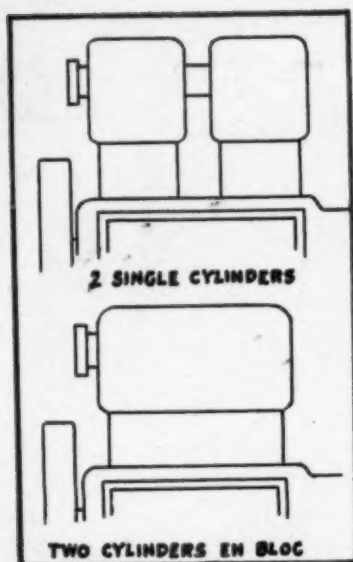
Standardization is the watch word on all sides in the boat building industry these days. Recent announcement has been made of a new stock cruiser to be turned out in quantities by the Burger Boat Co., of Manitowoc, Wis. This boat is to be 36 feet long and is to be powered with a Scripps motor. Another new stock boat is also to be produced by the Rochester Motor Boat Works of Rochester, N. Y. This one will be of the same general dimensions as the Burger Boat and is to be driven by the model D6 Scripps motor similar to the power plant in Shawnee III described below. With as many kinds and varieties of stock cruisers as the market offers today, the popularity of the standardized stock cruiser is increasing daily. Prospective motor boat owners will soon be able to buy a boat as they do an automobile.



Several interesting views of Shawnee III coming, head on and going. Note particularly the absence of commotion at full speed

# You'll Know at a Glance

By A. E. Snyder

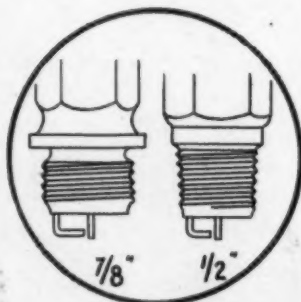


## Cylinder Castings

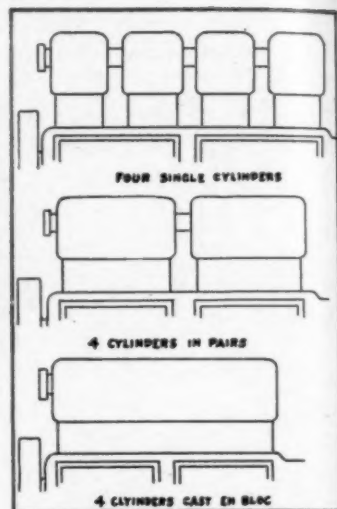
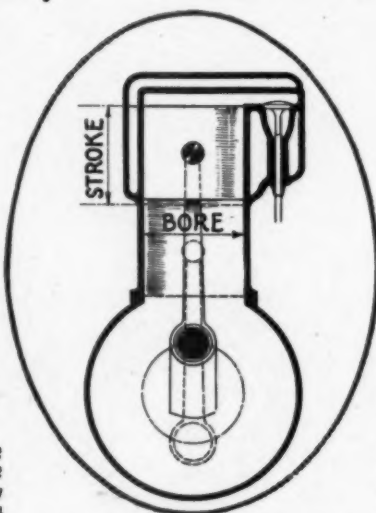
Beginning with the cylinder castings, the metals of which are usually iron for marine purposes, the design can call for castings either in units of single, two, three, four or six. The block casting (or cylinders en bloc) is one in which all the cylinders are cast in one block as the illustrations of the various cylinders show

## Spark Plugs

A  $\frac{3}{8}$ -inch spark plug is of the straight thread kind, depending on a copper gasket held tight against the shoulder of the plug to make it gas-tight. A  $\frac{1}{2}$ -inch plug has a tapered thread, the further it is screwed into the cylinder head the tighter it becomes. The illustrations show the difference between the two very plainly



How often we hear among boatmen, even among men who have been boat owners for a number of years, the expression, "What do you mean by gear pump or plunger pump?" or "How do you know the difference between a  $\frac{7}{8}$ -inch spark plug and a  $\frac{1}{2}$ -inch spark plug?" or other questions. That is just the reason why we thought it would be a good idea to make plain in every way the different parts of a motor without using technical terms so that boatmen will know at a glance the difference between the build of the different engines and their get up.

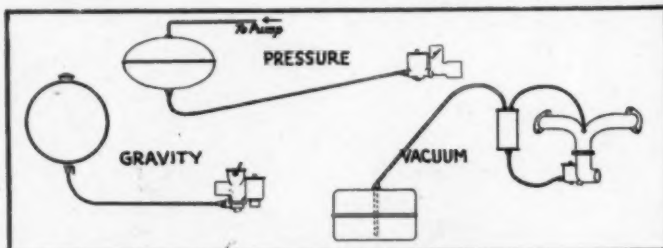


## Bore and Stroke

The size of an engine is always expressed in terms of bore and stroke. The bore, which is always mentioned first, is the inside diameter of the cylinder. The stroke refers to the total distance the piston travels from the top to the bottom of the stroke. If an engine is referred to as  $3\frac{1}{4} \times 4$  this means that it has a  $3\frac{1}{4}$ -inch bore and a 4-inch stroke

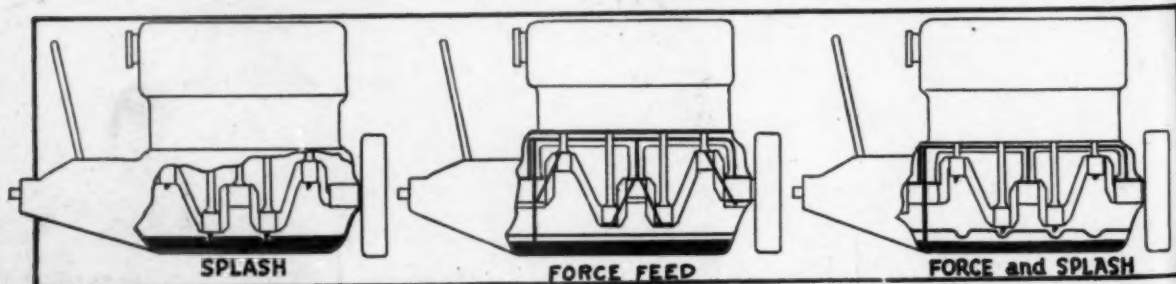
## Fuel Feed

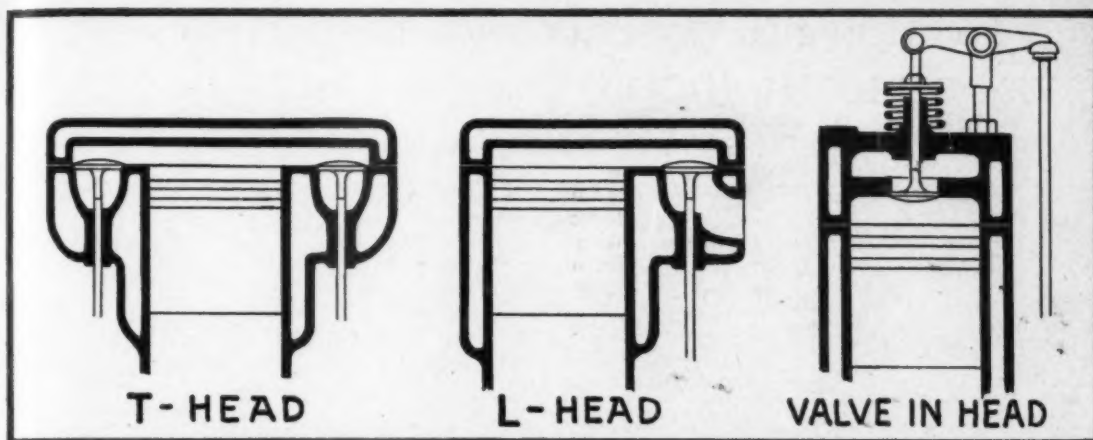
Regarding the fuel feed, the gravity system is the one which is universally used; among small boats and high-speed runabouts where the gasoline tank cannot be installed higher than the carburetor, the pressure or vacuum system has to be resorted to. The pressure system depends for its efficiency on an air-tight line between tank and engine



## Lubrication

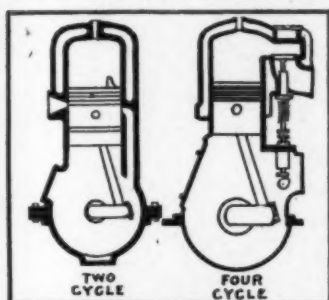
The splash system is one that is entirely dependent on the little scoops on the lower part of each connecting rod dipping in the oil and splashing it on the cylinder walls and bearings. The force feed is dependent upon a pump forcing the oil through tubes to every moving part in the crankcase. The crankshaft being drilled and oil forced through to the bearings, even the connecting rods are drilled and the oil forced through, lubricating the wrist pins and cylinder walls. Splash is not depended upon in any way





### Valve Location

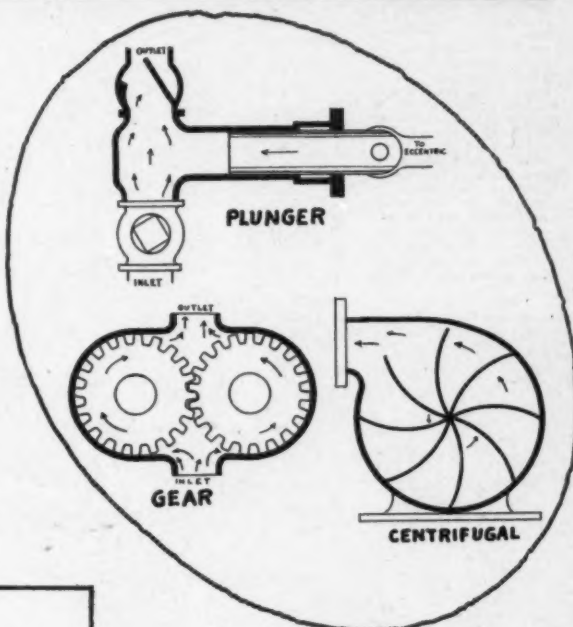
As the name implies the T and L head motor resemble the letters, the T head requiring two camshafts, one being the inlet side, and the other the outlet side. The L head have both inlet and exhaust valves on one side. The valve-in-head, as the illustration shows, speaks for itself



### Two-cycle and Four-cycle Motors

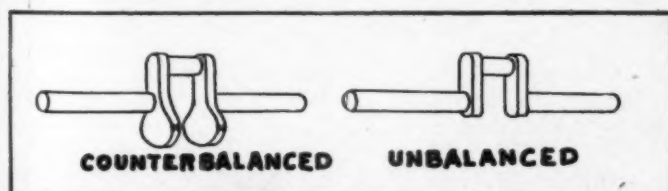
The two cycle motor draws gas into the crankcase and compresses it there. A port is uncovered as the piston reaches the bottom of the stroke and the gas is blown into the firing chamber, compressed further and exploded when piston is at the top. An exhaust port is opened near the bottom of stroke and pressure relieved and a new charge admitted. The four-cycle motor fires once on every other stroke. The action is as follows: Suction on down stroke—compression on up stroke O working on next down stroke—exhausting on next up stroke and then repeat. Valves are opened to synchronize these cycles with the position of the piston

bottom of stroke and pressure relieved and a new charge admitted. The four-cycle motor fires once on every other stroke. The action is as follows: Suction on down stroke—compression on up stroke O working on next down stroke—exhausting on next up stroke and then repeat. Valves are opened to synchronize these cycles with the position of the piston



### Pumps

Of the different circulating pumps used the three types shown are the most common. The plunger pump operates back and forth within a cylinder and delivers a squirt of water for each plunger stroke. The gear pump operates continuously and carries a small volume of water around in the space between the gear teeth. The centrifugal is used where larger capacity is required and can be built to deliver a continuous stream of any desired volume

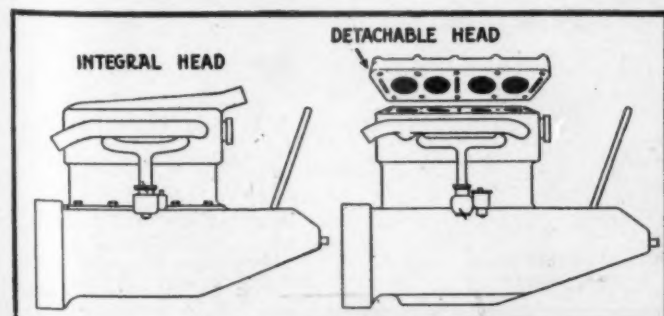


### Counterweights

The counterbalanced crankshaft has weights attached to or forged to the arms of the shaft to counterbalance certain forces which tend to distort the shaft at extreme speeds and cause undue vibration

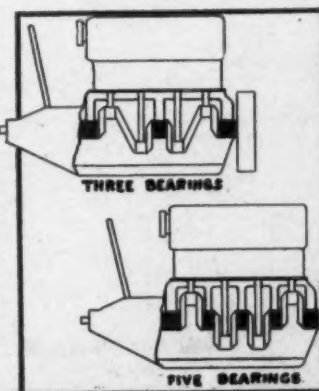
### Cylinder Heads

A detachable cylinder head, as the name implies, is cast separately and bolted on with an asbestos gasket between. The integral is all one casting



### Crankshaft Bearings

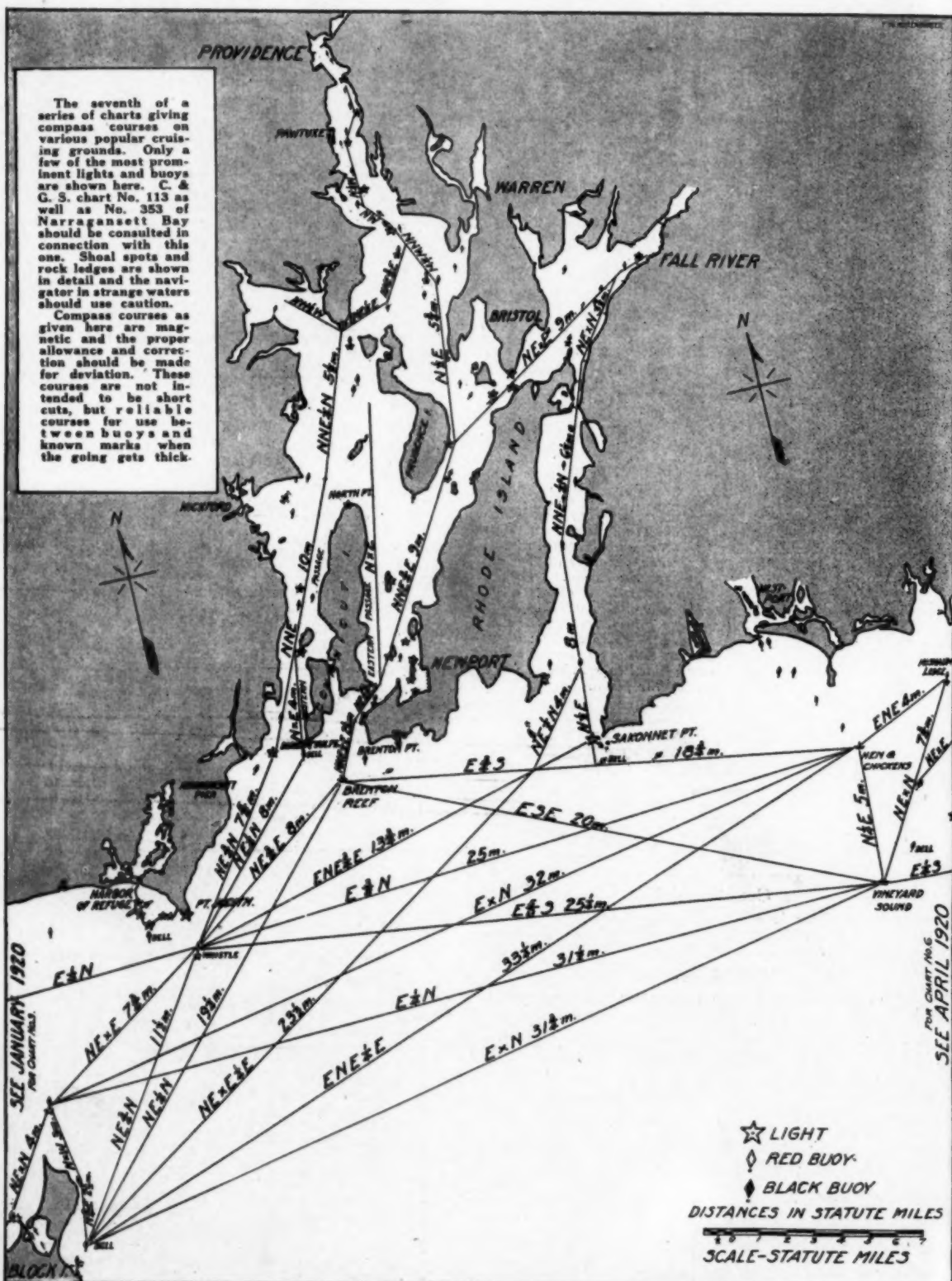
Where there is great strain and distortion, the greater amount of bearings, the stronger the engine, where each arm of the crankshaft is held firmly between two bearings, the distortion is held down to a minimum. The three-bearing engine will be found on lighter boats where the work is not severe

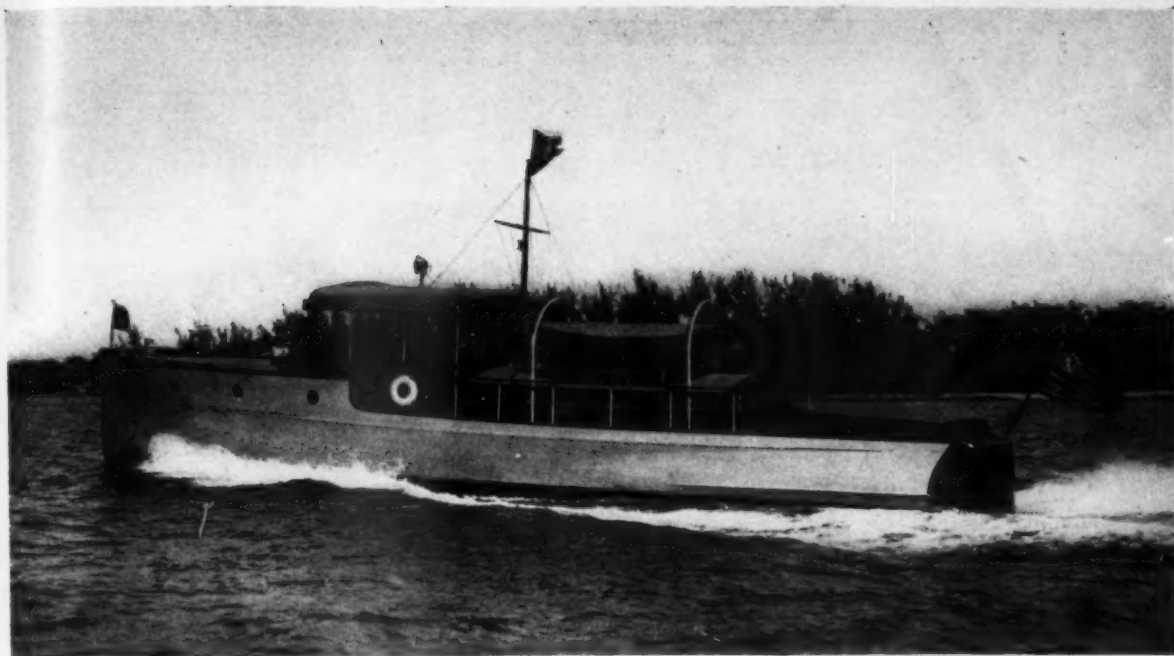




# No. 7 Compass Courses, Block Island to Vineyard Sound Including Narragansett Bay

Chart Users See an Important Announcement on Page 114





## Good Will, Going To California

Latest Product of the Great Lakes Boat Building Corporation To Be Used on the Pacific Coast at San Pedro

**K**EITH SPALDING, of Chicago, son of the owner of the famous sporting goods store that bears that name, has just placed in commission a new 54-footer built by the Great Lakes Boat Bldg. Corp., of Milwaukee, Wis.

This boat has been shipped overland to San Pedro, Cal., where it will be used for six months of the year.

Mr. Spalding's boat will make a most notable addition to the fleet of boats in Pacific waters. As a matter of fact, it will represent the very latest and best practice in modern express cruiser construction.

twin-screw operation, with all controls carried to the bridge deck. Two operating gasoline tanks are installed in the engine-room and the reserve tanks are placed under the cockpit. The gas is taken from the reserve storage tanks by means of a pump, which draws the gasoline out of the top of the containers, thus avoiding any possibility of leaks.

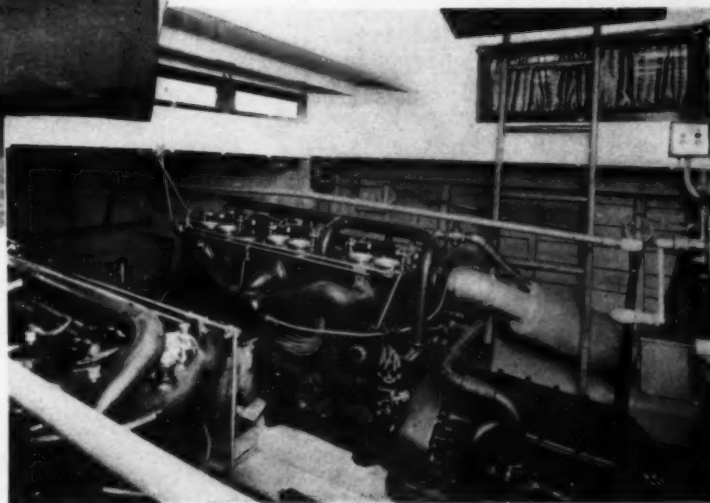
Good Will is absolutely the finest express cruiser obtainable. The interiors are finished in mahogany throughout and the upholstery is of imported broadcloth matched with Wilton carpets and silk hangings. The plumbing and the fittings are of the very finest quality.

The bridge deck is enclosed with a windshield and canopy with top and side curtains. A special seat has been provided on top of the canopy for a lookout position to locate schools of fish, since Mr. Spalding is an ardent fisherman and will use the boat for this purpose much of the time.

The operation of this boat will prove to be a matter of great interest to yachtsmen in the West by reason of the flexibility of control from  $2\frac{1}{2}$  to 25 m.p.h.

The engine compartment reflects the very latest engineering practice. Two six-cylinder, Model M, Van Blercks are installed for

*Compact installation of the twin Model M, six-cylinder Van Blerck motors in the engine-room of Good Will. This flexible power plant permits of speeds from  $2\frac{1}{2}$  to 25 miles per hour*



### Hoosier's Remarkable Record

Feb. 14, won the Miami-to-Bimini and return race, 113 miles, time, 3 hours 55 minutes 15 seconds.  
 Feb. 21, won the Palm Beach and return race, 150 miles, time, 5 hours 8 minutes 32 seconds.  
 March 5, won 10-mile Biscayne Bay race, Miami mid-winter regatta. Time, 19 minutes, 8 seconds.  
 March 6, second in 20-mile Biscayne Bay race, Miami mid-winter regatta. Time, 38 minutes, 7 seconds.  
 March 6, 1-mile time trial; time, 1 minute 44.9 seconds.  
 March 10, won the Miami-to-Bimini and return race, 113 miles, time, 4 hours 42½ minutes.  
 March 15, won Miami-to-Key West race, 160 miles, time, 5 hours 16 minutes 51 seconds. World's record.  
 March 17, won the 10-mile Biscayne Bay race, time, 18 minutes 22½ seconds.  
 March 18, won the 20-mile Biscayne Bay race, time, 38 minutes 12½ seconds.



*Hoosier V., the world's fastest speed cruiser. Speed: 34.32 miles per hour. Power, two 200 h.p. Sterling motors. Builder, Geo. Latsley & Son, Osmer, H. R. Duckwall*



## Twenty-Six-Foot Sea-Sled, Hall-Scott Powered, Makes 47 M.P.H. in Trials

THE illustrations on this page show the latest Pacific Coast sensation, a 26-foot Sea Sled just completed by the Boeing Airplane Co., of Seattle, Wash., and which has just completed its trial runs for speed.

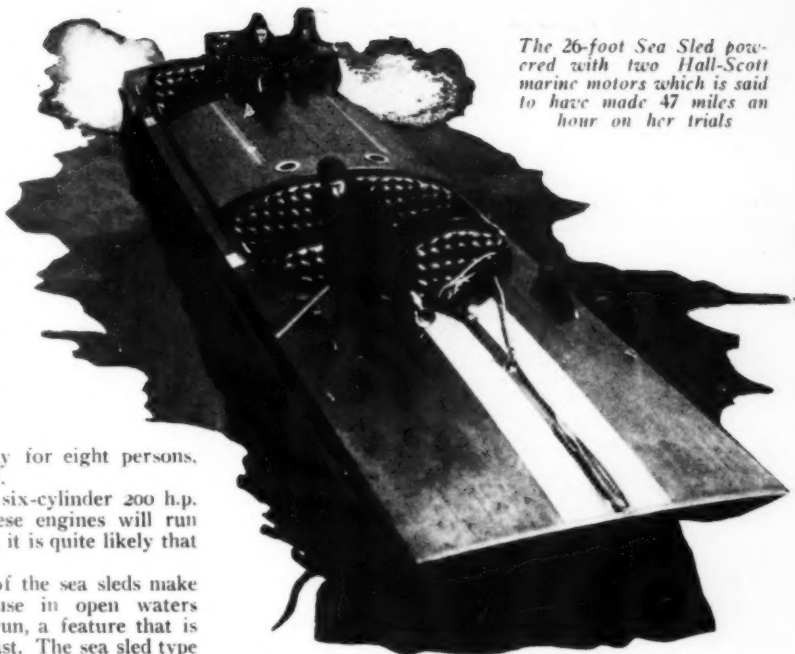
With motors turning at 1,600 r.p.m. this craft attained the remarkable speed of 47 m.p.h. which, considering the fact that this boat is not a light racing hull, but a big, husky sea-going craft with comfortable seating capacity for eight persons, makes this speed even more sensational.

This sled is powered with a pair of six-cylinder 200 h.p. Hall-Scott marine engines, and as these engines will run steadily and consistently at 1,750 r.p.m., it is quite likely that a greater speed will be attained.

The remarkable sea-going qualities of the sea sleds make them particularly well adapted for use in open waters where the average fast boat will not run, a feature that is much appreciated along the western coast. The sea sled type of boat is becoming better known and better liked every year. It embodies many long-desired features in motor boat construction—speed, safety, comfort, and dryness. Surface propulsion also adds several features which it is impossible to obtain with boats using ordinary underwater propellers. Chief of the advantages of surface propellers is the ability to run in shallow water and water full of weeds and other growths as well as to negotiate waters where drift wood

and other floating objects are a menace and a danger.

The development of the type of marine motor which the Hall-Scott Company has produced, that is, high speed with light weight and absolute reliability, will tend to make boating in sea sleds and other forms of fast runabouts more enjoyable than ever before by those people who are discriminating.

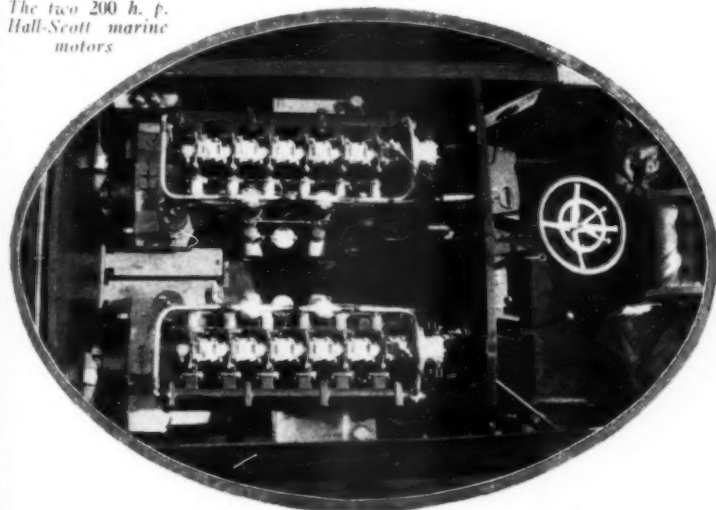


The 26-foot Sea Sled powered with two Hall-Scott marine motors which is said to have made 47 miles an hour on her trials



The Sea Sled underway. Note how this type of boat planes and runs without fuss of any kind

The two 200 h. p. Hall-Scott marine motors



The original 26-foot Sea Sled had a beam of 6 feet 6 inches and weighed 6,300 to 6,500 pounds on her various trials. On the long run from Boston to Bar Harbor, where an extra amount of fuel, baggage, passengers, etc., were carried, the weight ran up to approximately 7,600 pounds. These boats will plane with the motors running at a little more than half speed. The original Sea Sled was guaranteed to do 35 m.p.h. On her first trip she developed well over this speed and approached 40 miles maximum speed. After an overhauling later on, new propellers were fitted. These were based on results of the first trials and as a result speeds of 44 to 45 miles were reported. These speeds, while not official records, are approximately correct. On the latest models now being turned out by the Boeing Airplane Co. speeds in excess of 47 miles an hour have been shown and there is every reason to believe that 50 miles will be surpassed when propeller trials and other tests now under way will have been completed. These sea-sleds, fitted with Hall-Scott motors, make a fine combination.

# International Thirty-Twos a Success

Interesting Photographs Showing the Interior Arrangement of These Attractive Boats Which Have Just Undergone Successful Trials

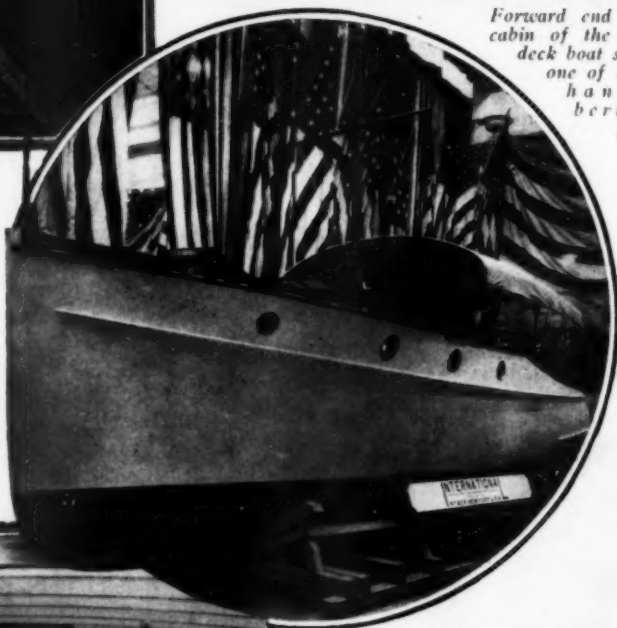
Photographs by M. Rosenfeld



The double cabin model is provided with two separate staterooms. This picture shows the interior details of the after stateroom



Forward end of the cabin of the raised-deck boat showing one of the two hanging berths in place



Outboard view of the raised-deck model the interior of which is shown below. The cabin is amply ventilated by means of a hatch and large skylight and the interior is unusually well lighted and cheerful. A large spacious cockpit affords ample space when cruising about, with no evidence of crowding

Trial trips of the famous International Thirty-Two have been most successful. Under a tremendous downpour of rain one cold day not long ago members of MoToR BOATING's staff enjoyed a trial trip on both models of these boats. In spite of the adverse weather conditions the Kermath motors functioned perfectly and the boats developed a fine turn of speed.



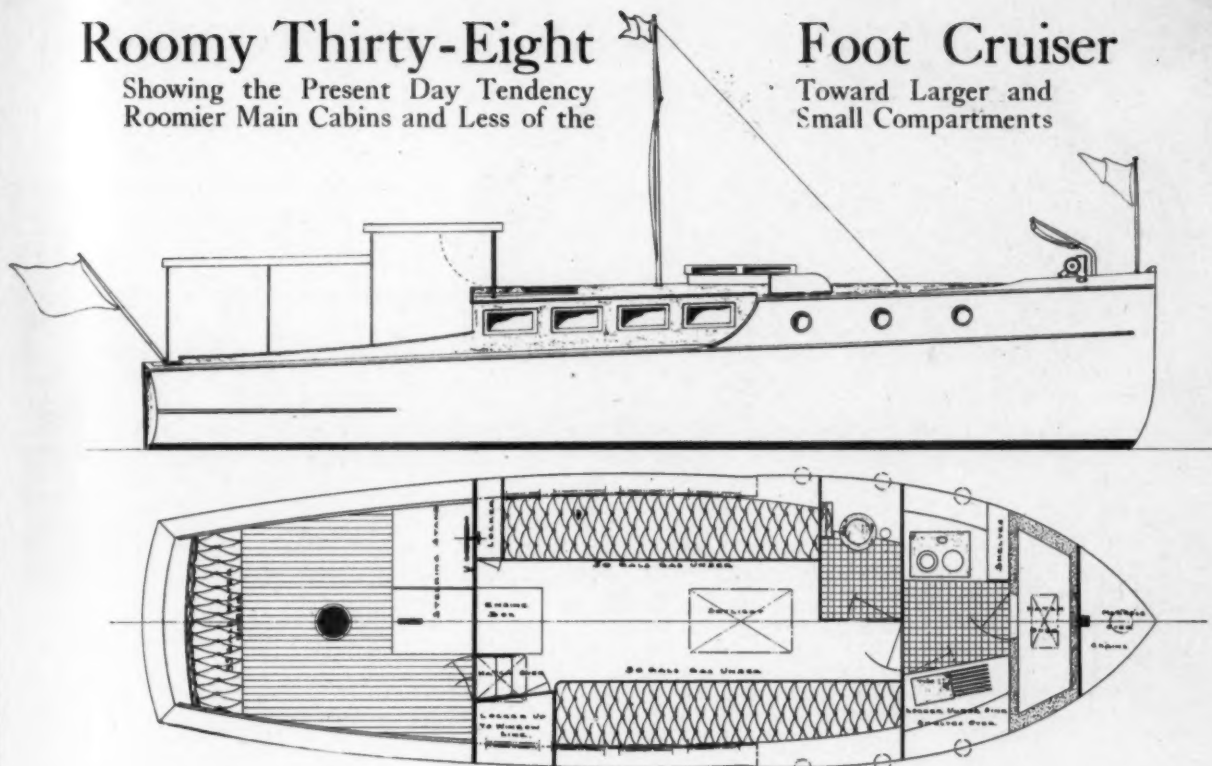
In the forward cabin of the bridge-deck cruiser the berths are arranged to fold back against the skin of the ship. These berths are 6½ feet long and will accommodate all the six-footers comfortably. Headroom is sufficient to allow these same six-footers to walk about with their hats on. Galley and pantry facilities are identical on both boats although the galley location is not the same

## Roomy Thirty-Eight

Showing the Present Day Tendency  
Roomier Main Cabins and Less of the

## Foot Cruiser

Toward Larger and  
Small Compartments



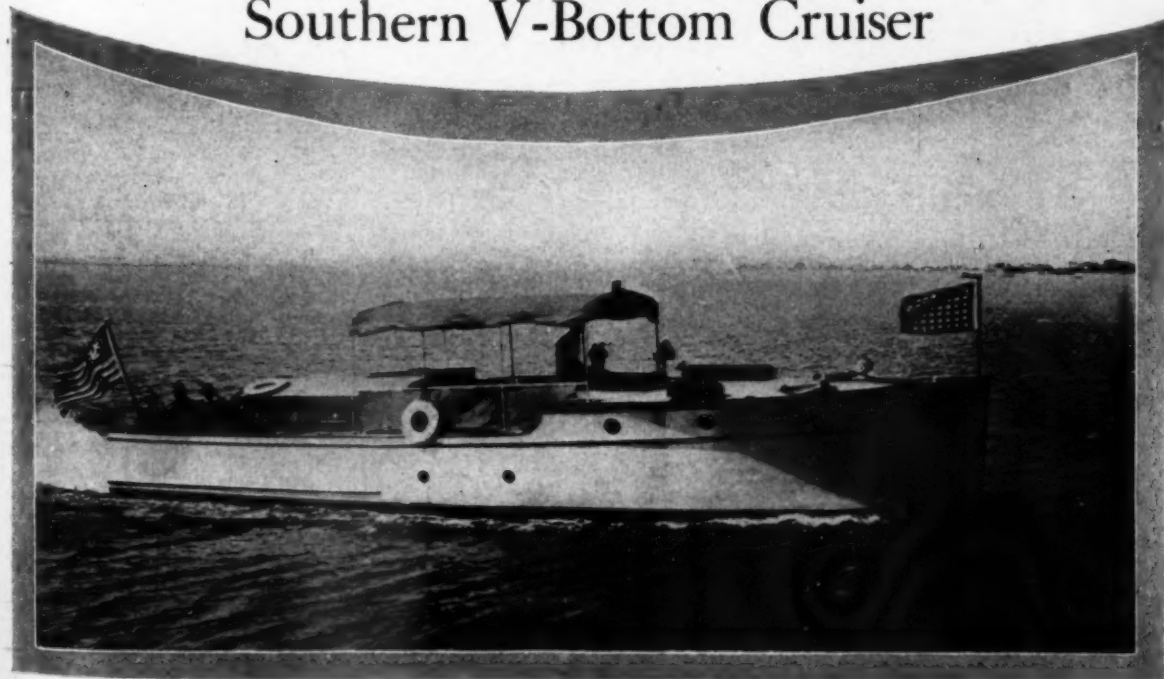
Profile and arrangement plan for 38-foot cruiser

THE accompanying plans show a 38-foot cruiser of the raised-deck and trunk-cabin type. The boat shows an exceptionally large main cabin; with plenty of light, air, and room. The present tendency is towards boats that have larger and fewer compartments; in preference to those that are divided up into a number of cubby holes. This

boat was designed for a New Yorker and is at present under construction by Geo. F. Carter, at East Quogue, L. I.

The forward end of the motor projects into the cabin and is covered with a removable box; the after end of the machine being under a raised bridge; on top of which are the controls and steering stand.

## Southern V-Bottom Cruiser

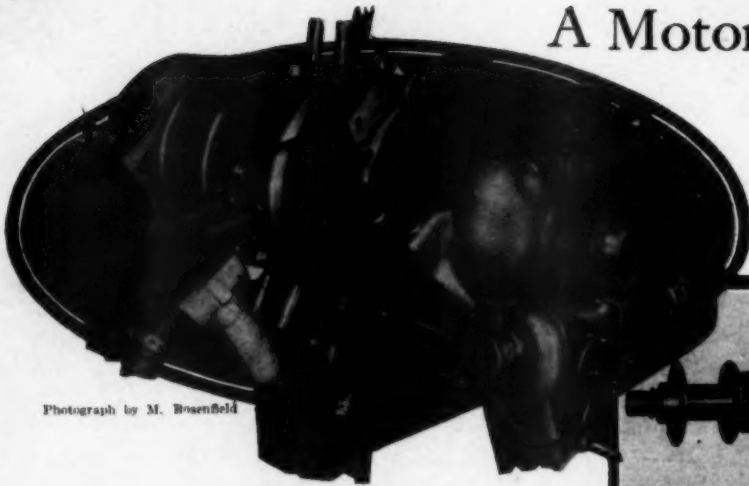


This 42 x 9-foot 6-inch V-bottom cruiser, recently completed for Wm. Freeman, Jr., of Norfolk, Va., by the Richardson Boat Co., of North Tonawanda, N. Y., is driven at 15 miles by a six-cylinder Scripps motor of 60-75 h.p.

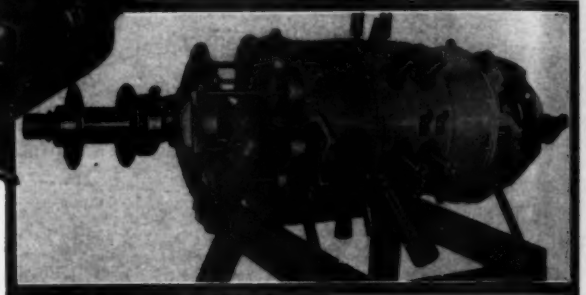


# A Motor That Is Different

Spanish Motor Developed During the War Has Some Most Unusual Features



Photograph by M. Rosenfeld



Magneto end of the Lleó motor and a view showing the oscillating plate, connecting rods and pistons

**A**PPROACHING the ideal in gas engines is a slow continuous process. A distinct and radical departure from accepted theory and practice, together with a long step forward, is to be noted in this new machine. The invention and conception of this motor took place in Spain during the height of the war, when materials were difficult to obtain and skilled labor was occupied at the front.

The motor of your dreams is now a reality. Vibration practically non-existent, maximum flexibility, will run silently at any speed under full load conditions with no visible effort, and no apparent evidence of motion.

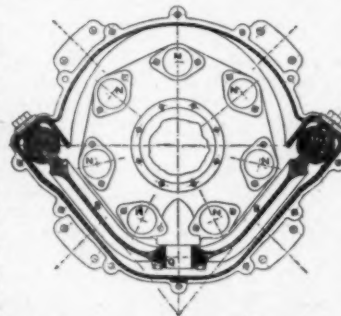
Some of the extremely unusual features are, first, the disposition of the cylinders. Seven of these are concentrically disposed about the crankshaft, whose axis is parallel to the axis of the cylinders. The crankshaft differs radically from the accepted form and is merely a straight shaft with a single throw inclined at 45 degrees to its centerline at each end. The camshaft is in the form of a sleeve, which is slipped over the central portion of the crankshaft. Two pistons are provided for each cylinder and the explosion takes place between them driving them apart in a longitudinal direction. The connecting rods are quite slender and another departure from convention is the elimination of wrist pins and the substitution of very efficient ball and socket joints at each end. The thrust from the connecting rods is transmitted to a plate which is mounted on the inclined portion of the crankshaft and which on rotation of the shaft assumes a peculiar motion which is perhaps hard to understand. Any one point on this plate moves in and out in a horizontal direction, tracing an arc whose radius is the distance to the center of the shaft. As each of the fourteen pistons moves out as a result of the explosion pressure behind it the plate is moved with it and by means of a tor-

sional effort on the inclined ends of the crankshaft causes a rotational movement of the shaft. The operation is smooth, efficient, and quiet. Some skeptical engineers have said that it will not work. Believing the evidence presented by an

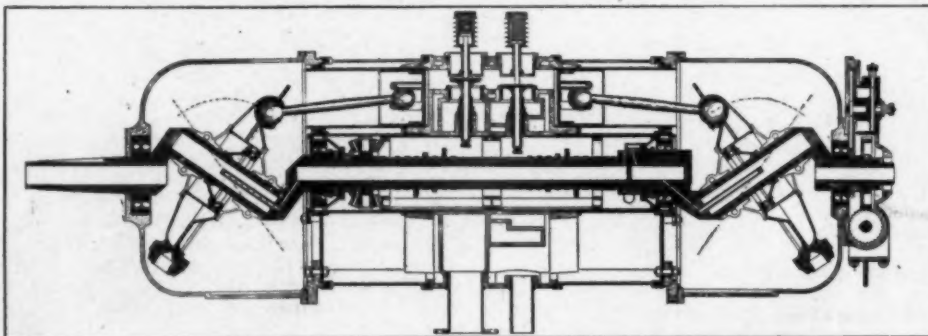
engine in actual operation convinced the writer that it will not only work but will do all that is claimed for it. At 1,250 r.p.m. this machine will develop 150 h.p., as proved by tests made by the British Admiralty, who adopted this motor along toward the close of the war. The bore and stroke of the motor is  $3\frac{3}{4} \times 5\frac{1}{4}$  inches and the weight with an aluminum housing is 300 pounds or 2 pounds per horsepower. Its overall dimensions are 46 inches long by  $13\frac{1}{2}$  inches diameter. The valves are opened against the tension of a spring on the outside of the motor housing. Here they are provided with cooling arrangements and are readily accessible for replacement or repair.

The gasoline consumption is 11 gallons per hour, or less than 0.6 pint per horsepower hour, which is highly economical. Oil is used at the rate of one gallon per hour. Motors in larger sizes to the same general design are in contemplation. There is no reason why motors of powers and sizes hitherto believed impractical for gasoline motors cannot be built and operated. It is a certainty that some day there will be numerous of these motors performing useful work at higher efficiencies than the present types.

This motor is called after its inventor, Sig. A. Lleó y Morera, who recently demonstrated its workings to MoToR BOAR-ING's engineering staff.



Details of connecting plate which changes the reciprocating motion of the connecting rods to the rotary motion of the crankshaft. Sockets marked N are joints for attaching connecting rods



Longitudinal section on centerline of the Lleó showing details of attachment of connecting rods to plate and crankshaft. The peculiar valve action is also shown, springs are in air-cooled cages away from the heat of the motor

# SMALL MOTOR BOATS

## Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the July Prize Contest

1. Give some plan or system for estimating the value of a used boat; even though the original cost may not be known; so that one wishing to buy or sell could arrive at a fair price.

*Suggested by C. H. C., Saginaw, Mich.*

2. What method have you adopted or designed for allencing the exhaust on your motor boat? Illustrate with sketches.

*Suggested by H. A. H., Baltimore, Md.*

3. What do you do with worn bearings (crankshaft and connecting rod), both split and solid types in babbit or bronze, and how do you manage to use them again with good results?

*Suggested by F. A. K., New York City*

### Rules for the Prize Contest

ANSWERS to the above questions for the July issue, addressed to the Editor of *MoToR BoATiNg*, 119 West 40th St., New York, must be (a) in our hands on or before May 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before May 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of *MoToR BoATiNg* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more than

that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of *MoToR BoATiNg*, of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

## How to Provide Additional Sleeping Accommodations

Some Ingenious Methods of Caring for the Extra Guest and Providing Him with a Comfortable Berth

Answers to the Following Question Published in the March Issue

*"Describe what you have found to be the most efficient arrangement of sleeping quarters on a small cruiser. Illustrate with drawings a novel form of bed or bunk which you may have devised or improved upon."*

### Transom Berths for a Small Cruiser

(The Prize-Winning Answer)

THE most efficient arrangement of sleeping quarters on a small cruiser. That seems to be one of the most difficult problems that the small boat owner has to contend with and the difficulty of arranging this part of the outfit increases as the size of the boat is reduced.

The cabin of my small cruiser is so small that only two berths can be provided and as our party usually numbers at least four, some provision must be made for sleeping in the cockpit.

After several seasons of planning and experimenting, the extension shown in the sketch for the transom seats was devised. It is the simplest and most satisfactory of any that I have noticed or tried. Its advantages are that when not in use as a berth, there is provided a low vertical strip to keep the cushions in place; and when folded out and used as an extension berth, there is a high front that is a necessary part of any successful berth as it keeps the blankets from sliding off and is the only way to make a narrow sleeping place comfortable. In operation the extension is simply folded outward and held in position by two small chains extending to the carlins above. Then the cushion is moved out and back cushion used to fill up the extra space. If the cushions are made reasonably thick and filled with some good, soft, pliable material, this berth will be comfortable and should be entirely satisfactory for the small boat. Another advantage of this extension is that it may also be used for converting the boat into one wide berth by folding the vertical front pieces down flat and providing suitable supports below.

For sleeping in the cockpit, two knockdown canvas berths are provided; similar to the well-known and very comfortable pipe berth, with the exception that no pipe is used in their construction. Experience has shown that the parts for a pipe berth when knocked down were heavy, rough and clumsy and were usually considered as so much undesirable junk, when not in actual use as a berth. Pipe fittings and parts are also quite expensive; so in order to overcome the above objections, a light frame of wood was devised, the de-

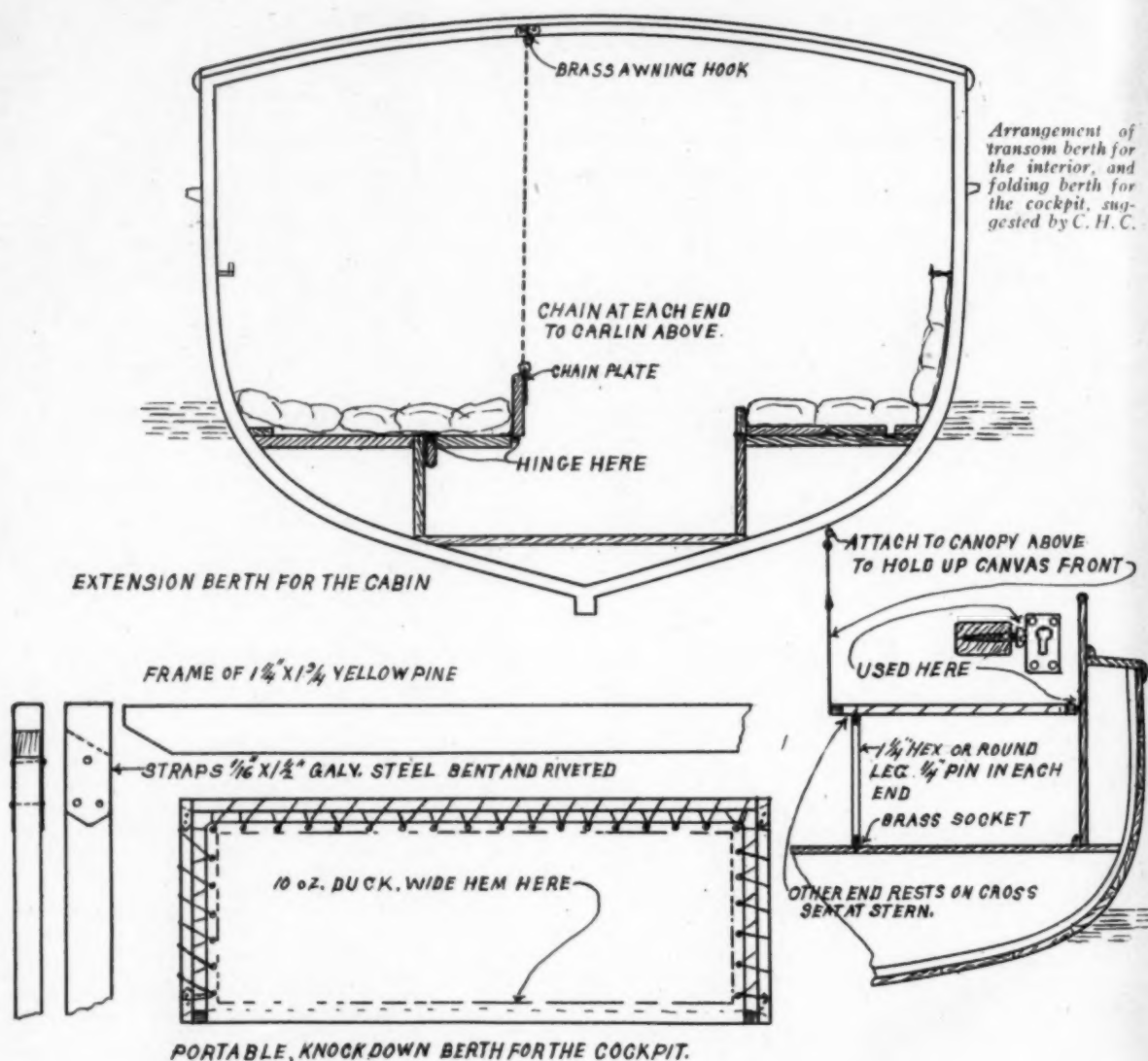
tails of which are plainly shown in the sketch. The material may be straight grained yellow pine, ash, spruce, or any other strong, light wood and should be stained or finished natural so as to harmonize with the cockpit.

The canvas should be about 10-oz. and have a wide hem on one side and grommets for lacing along the other side and two ends. One of the side bars is slipped through this pocket or hem and the other passed through the lacing along the other side, now the two end pieces are put in place and the ends of the canvas laced up and the side lacing adjusted if necessary; the whole operation taking only a few moments. When knocked down, the long side bars are smooth, light pieces, entirely free from metal fastenings or fittings and are easily stowed. The short end pieces with the metal straps over each end and the canvas are easily rolled up and stowed away in any suitable locker.

The method of supporting or using this portable canvas berth will vary somewhat with different arrangements of cockpit. In my boat the cockpit is open without side seats so one end of the berth is simply placed on the cross seat at the stern. The forward end nearest to the side of the boat is supported by a sort of bracket or hook attached to side of cockpit. Now this leaves one corner to be provided for and where the awning or canopy framework is substantial enough this corner may be conveniently suspended by using a small chain as with the other berths. Where this plan is not practical, a leg or piece of wood of proper length with a 1/4-inch pin in each end may be used to hold up this corner. One pin should go into a hole in the frame of berth and the other into a small brass socket in the floor.

What has been said about having a wide upright front piece as a necessary part of any narrow berth holds good in regard to the portable canvas berth also. At the back, the coaming or side of boat answers this purpose; and at the front or the edge where the wide hem is used, instead of lacing, there is an extra piece of canvas about a foot wide with grommets at intervals of about 18 inches. Suitable lines are spliced into these grommets and hooked up to the canopy above, holding this piece vertical and keeping the blankets, etc., where they belong. C. H. C., Saginaw, Mich.

(Continued on page 25)



## Most Popular Fastenings for Small Boats

Galvanized Iron Screws Seem to Be Most Favored on Several Counts

Answers to the Following Question Published in the March Issue

*"Discuss the matter of fastenings for the ordinary single plank cruiser. Copper nails, rivetted brass screws, galvanized screws, galvanized nails, clinched over or not. Holes plugged or puttied. Which is best of the four from the standpoint of economy and efficiency?"*

### Galvanized Screws Best for General Use

(The Prize-Winning Answer)

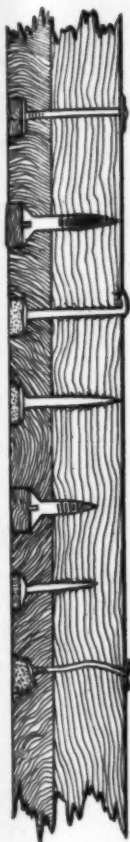
THE sketch shows the different types of plank fastenings for the average small cruiser, whose planking is from  $\frac{3}{4}$  to 1 inch thick, with frames from 1x1 to  $1\frac{1}{2}$ x1 $\frac{1}{2}$  inches. The writer has had considerable experience with these different fastenings and will express his personal preferences in the matter, though, of course, there is always room for plenty of argument in such a subject as this.

Fig. 1 shows the copper nail driven through a hole bored for it in plank and frame and the head set into a countersunk hole, also bored in the planking; the inner end cut off and riveted over a copper burr, while a wood plug with grain running in the same direction as that of the planking is set in varnish or paint and cut off flush. Such a combination is supposed to be the best, though the writer prefers the galvanized screw, plugged. A galvanized nail riveted over a galvanized burr is seldom used—the end that is riveted is not galvanized, of course, and will corrode; in the case of

a fresh water boat, if kept well painted with red lead or other preservative, it might endure, but the galvanized screw would hold well enough and be cheaper both from the standpoint of labor, time and material.

Fig. 2 shows either a galvanized or brass screw, plugged with a wood plug. A galvanized screw will usually pull through the planking sooner than pull out of the frame, and even in salt water, if of good quality, will outlast the boat. It is quickly and easily put in by one man—copper rivets require a helper—leaves the inner surface of the frame smooth and clean, can be drawn up tightly as desired and all in all would appear to be the best even if the question of first cost and time and labor was not considered. The brass screw, on the other hand, is not to be recommended; it is of low tensile strength and is either liable to twist off while being driven or weakened to the extent that it is liable to let go at any time. It is of higher first cost than the galvanized screw but in many cases, especially in a salt water hull, will not last as long; in some hulls brass screws have been known to turn to spongy copper in a few months.





Next we have galvanized or copper boat nails, clinched or not. Copper nails, unless of large size, are expensive and useless, for they are weak and usually break off when clinched, or if ductile enough, are too soft to stand any strain. For frames from  $1\frac{1}{4}$  inches to  $1\frac{1}{2}$  inches and larger, the galvanized boat nail driven almost through makes a very good fastening; it holds well, though not as well as the screw, is cheap in first cost and to drive, when not clinched and like the screw, leaves the inside of the frame clear. The writer has tested the holding power of nails in inch planking and inch and a quarter frame and found little difference between the straight driven nail and the

- 1-Copper nail, riveted over burr, wood plug set in paint or varnish. Theoretically the best.
- 2-Galvanized iron screw wood plugged, the writer's preference. Brass screw, plugged or puttied—metal sometimes softens. As shown, plug sometimes expands and must be smoothed down.
- 3-Galvanized nail driven through and clinched. Copper nail, ditto—worthless.
- 4-Galvanized nail almost through but not clinched. Under test, practically as strong as clinched nail. Most economical.
- 5-Screw too short. Head set in too deep.
- 6-Nail too short—will probably pull out.
- 7-Poorly fastened copper nail—buckled and liable to split frame. Head too deep.

clinched one; the clinched nail is considerably more expensive to drive as a helper is required to hold the clinching iron.

From the standpoint of economy the driven nail, not clinched, is best, but for endurance and efficiency the screw is somewhat better. The copper riveted nail does not seem to have any special advantage to counterbalance its high first cost and expense of insertion, while the writer's sad experiences with corroded and softened copper and brass fastenings would tend to cast a doubt upon their wearing qualities.

Any fastening will prove unsatisfactory if inserted incorrectly or if too small for the timber dimensions. Fig. 5 shows a screw too short and set in too deeply; Fig. 6 too short a nail for the frame thickness, and Fig. 7 a buckled copper rivet set in too deep as well.

In regard to wood plugs vs. puttied nail holes, the latter are a little cheaper in first cost but the former by far the best as regards workmanship, appearance and wearing qualities if properly applied—not hammered in and compressed so as to swell out again, and set in varnish or paint to act as a cement and to help keep out water. Plugs are very little more trouble to install, as any one who has tried to poke putty into hole after hole and make a smooth job can testify, and if they do swell out a little after the boat is launched (Fig. 2) they may be easily smoothed off the first time the hull is hauled out and will then remain in good shape.

H. H. P., Oakland, Cal.

### Fastenings for a Single Plank Cruiser

**T**HERE are four methods of fastening the planking of a boat of the single plank type, namely, copper nails riveted over burrs, brass screws, galvanized screws, and galvanized nails.

Riveted copper nails are claimed by some to be the best, possibly on the ground that it is usually most expensive, due partly to higher cost of material and partly to the amount of labor required. There is no doubt but that this method provides a most secure fastening as long as the copper does not corrode and eat away. It is satisfactory for fresh water use,

but if the boat is used in salt water it is not good, because salt water and salt air act upon the copper and corrode it so that the fastenings are likely to give way. This method of fastening is best suited to light construction as the riveting makes a secure fastening which holds better under the twists and strains of a light hull.

Brass screws are subject to the corroding effect of salt water and air the same as copper rivets, but they have the advantage of being entirely protected by the wood which reduces this destructive action to a minimum. This is, however, one of the more expensive methods of fastening.

As to galvanized fastenings, these as a general thing are the most satisfactory for the type of planking under construction for use in any kind of water. However, only the best quality of galvanized nails or screws should be used, as a cheap grade is liable to rust out too soon. I have spent about twenty summers around boats on salt water and have seen many hauled out for repairs. In almost every case, those boats on which the planks were fastened with galvanized nails were much more sound than those having copper rivets or brass screws, especially among the older boats. Galvanized nails are not affected by salt water unless the coating comes off, in which case they will of course rust, but if properly galvanized there is little danger of this.

Those boats present the best appearance which have perfectly smooth sides, and the best means of securing this condition is to have the nail holes plugged instead of puttied. Of course, this costs somewhat more in the beginning, as all the nail holes have to be bored with a special drill, but it pays in the end in other ways than in appearance. If a plug is put in properly and set in paint or marine glue there is a very small chance that it will come out. This cannot be said of putty, as it is always necessary at each painting to replace more or less of it wherever it is used on a boat.

When the wooden plugs are smoothed off flush with the planks and the paint applied, it is impossible to tell where the planks are nailed except by examining them closely. On the underbody of a boat, smoothness is essential for both speed and economy in running. When putty drops out, it leaves a recess which causes a small eddy, and if there are many of them they will have a certain amount of retarding effect on the boat's speed the same as marine growths. The hole left by the lost putty also exposes a portion of the planking that is unprotected by anti-fouling paint, with the result that barnacles and grass have a chance to take hold and bores can start their work.

From the standpoint of economy and efficiency, the combination of planks fastened by the best galvanized nails and with nail holes plugged is much to be preferred to other methods. The first cost of nails is less than rivets or screws and they are more quickly put in. In addition to this, they will last as long, if not longer. Plugs are the best method of finishing for any kind of fastening so that the first cost is no greater in one case than in another. The above combination is therefore somewhat cheaper than others in building and, as it usually stands up longer, it would seem to be the most practical for most cases.

A. L. M., New York, N. Y.

### Locker Tops for Berths

(Continued from page 23)

**I**N a small glass-cabin cruiser, 28 feet long with 8-foot beam, I wanted sleeping quarters for at least two in the main cabin, which was 9 feet long. Every one to whom I spoke about this said it could not be done, so I went to work on the problem myself.

I did not want the outfit to cost much, so decided on the following plan: As I had the lockers in the boat to change that Spring, I made them 18 inches wide and 6 feet 6 inches long, and instead of bringing the top of the locker flush with the front side, let it just fit up to it, and kept the side just to the bottom edge of the top, making a right angle at their joint. Of course, the battens of the lockers took up all the strain on the lockers, as the front and top were not connected.

Next I made two duplicate tops for the lockers, and fitted right on top of the ones which were nailed solid on the

(Continued on page 86)

# The Proper Rudder for a Motor Boat

Curves and Statistics to Enable Anyone to Determine the Most Suitable Rudder at a Glance

Answers to the Following Question Published in the March Issue

"Explain what procedure you would follow in order to determine the proper size of rudder for a given boat."

## Selecting the Proper Rudder

(The Prize-Winning Answer)

THE problem under consideration is that of assigning the proper rudder to a motor boat. As the question does not call for a discussion of the action of the various types and sizes of rudders we shall concern ourselves solely with the determination of the proper area and a selection from what experience has taught us is best as regards proper shape and proportion.

The factors entering into a proper selection are the size of the boat, the speed of the boat and the area and shape of the lateral plane. The lateral plane is represented by the shaded area, as shown in Fig. 6, and is the area that would oppose motion if the boat were to be towed sidewise. The action of the rudder is to cause a turning moment about the center of this lateral area. Hence the greater the distance between the center of lateral plane and the rudder, the more positive will be the maneuvering. If the lateral plane is bunched amidships, as in a sloop, with the forefoot and deadwood well cut away, the boat will answer her tiller very easily, but such a boat must be watched continually to keep her on a straight course. A boat having a long lateral plane with deep forefoot and skeg will not maneuver so readily but will stick on her course very well.

It is a well-known fact that the larger the boat the smaller need be the rudder in proportion. The small cat boat represents the extreme for large rudders and the large sailing ship with its ridiculously small rudder represents the other extreme. However, the small cat boat needs the large rudder to compensate the balance between lateral plane and sail which is correct for but one point of sailing. The huge square rigger on the other hand rarely depends upon its rudder for maneuvering but accomplishes this by the set of the sails. A large rudder will create a greater turning effort than a smaller,—but the large rudder has greater "skin friction", greater weight and a thicker stock, all detrimental to speed, and cannot be handled as quickly. Hence it cannot

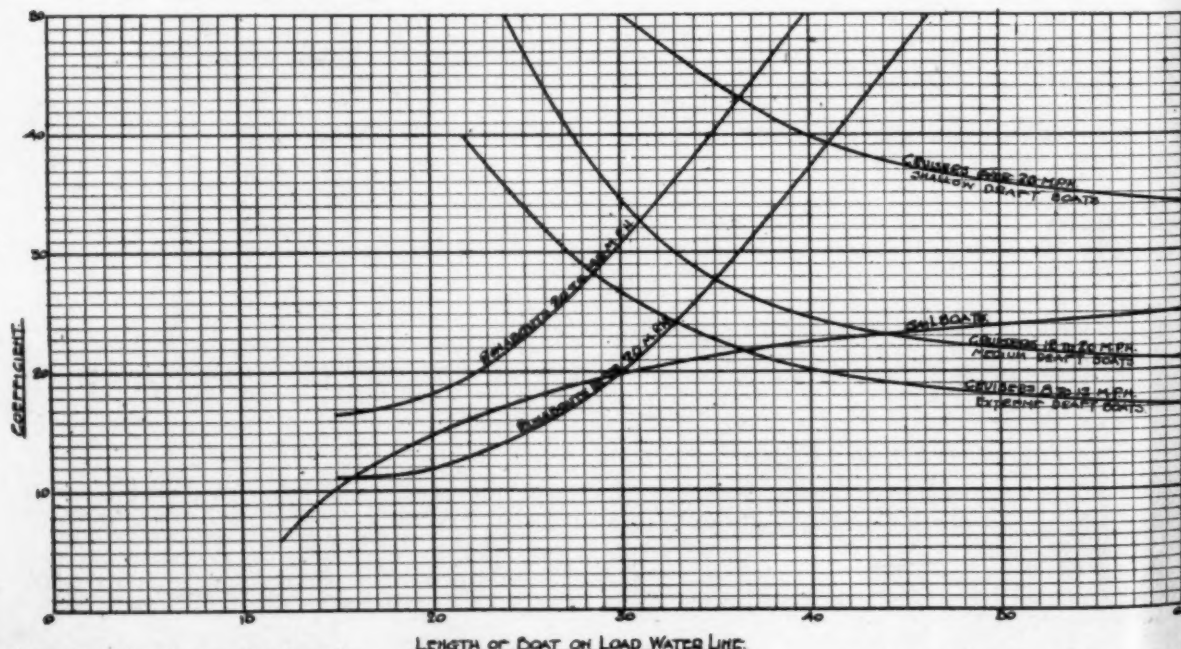
cause the boat to turn as suddenly,—and at times of danger a sudden turn is generally more desirable than an extremely short turn. Then, too, the faster the boat the smaller need be the rudder. The faster the boat, the greater will be the excess pressure on that side of the rudder that opposes forward motion and hence the necessary turning moment may be produced by a small rudder.

Nearly all motor boats carry balanced rudders,—that is to say, the rudder protrudes forward of the stock. The stock, however, should not be more than one-fourth the width of the blade aft of the cutting edge. The rudder is best placed directly aft the propeller so that it will benefit from the race of the propeller. In such position the boat will actually maneuver before the boat gains headway. The clearance between the rudder and propeller should be about one-third of the diameter of the propeller.

The various shapes are shown in the sketches. Fig. 1 represents the proper shape and position for a rudder on a cruiser. The rudder should be rectangular with the corners well rounded. Fig. 2 represents the best practice for moderate- and high-speed runabouts. Fig. 3 is the same rudder hung outboard. While this arrangement is at times highly convenient it has been shown that this position is greatly inferior to that shown in Fig. 2. Fig. 4 shows the deep dagger type suitable for very narrow high-speed boats where the boat depends very much upon the rudder for stability. The rudder's center of effort being low it causes the boat to heel inboard on the turns. Fig. 5 shows the bow rudder with its trailing form as used on our modern hydroplanes.

As to the size of the rudder, I have prepared a set of curves from which one knowing his boat's dimensions may pick a suitable area for the rudder. In Fig. 7, Curve "A" gives the average areas in square feet. Curve "B" gives percentages of lateral plane for various lengths of cruisers. For runabouts use 60 to 70 per cent. of these values. For high-speed boats of ordinary lengths the area need not be more than 5% of the lateral area. As in everything else a fair amount of good judgment is essential. J. A. W., Baltimore, Md.

### RUDDER AREAS



Curve involving the use of a formulae and coefficient to find rudder areas as proposed by J. H. S.

FORMULA = LENGTH ON LINE x DRAFT IN FEET COEFFICIENT

## Suitable Rudder Areas

IT is next to impossible to lay down a hard and fast rule or formula whereby the most efficient rudder area might be found for all sizes and types of boats.

This is because of the fact that varying types of boats are built for different purposes and to suit individual ideas and desires thereby resulting in varied rates of speed, original shapes of hulls, rudders, and location of rudders.

Therefore it stands to reason that the best way to get an efficient rudder would be to take the size from a boat that is identical in all desirable things to the one in mind and has been thoroughly tested and proven entirely satisfactory. But this can not always be done, even if such a boat could be found. The alternative is usually to guess, and try to find out for yourself. That may be the best way after all but it takes time and expense which might better be

expended in enjoying and improving the boat.

It is for this reason that the accompanying chart of curves has been plotted which when used in conjunction with the following formula gives the area of the rudder in square feet. This area must be applied efficiently for the type of boat. That is to say the shape of the rudder should not diverge to any great extent from the conventional contour that has proven successful on the type of boat similar to the one upon which the calculations are made. For cruisers and runabouts a deep balanced rudder is desirable. For different types of sail boats the rudder varies in shape.

The formula used is length on load waterline multiplied by extreme draft in feet and the result divided by the coefficient obtained from the curve. The quotient gives the rudder area in square feet.

To illustrate we will say we are given a cruiser of 30 feet on the load waterline, draft 3 feet which is

(Continued on page 60)

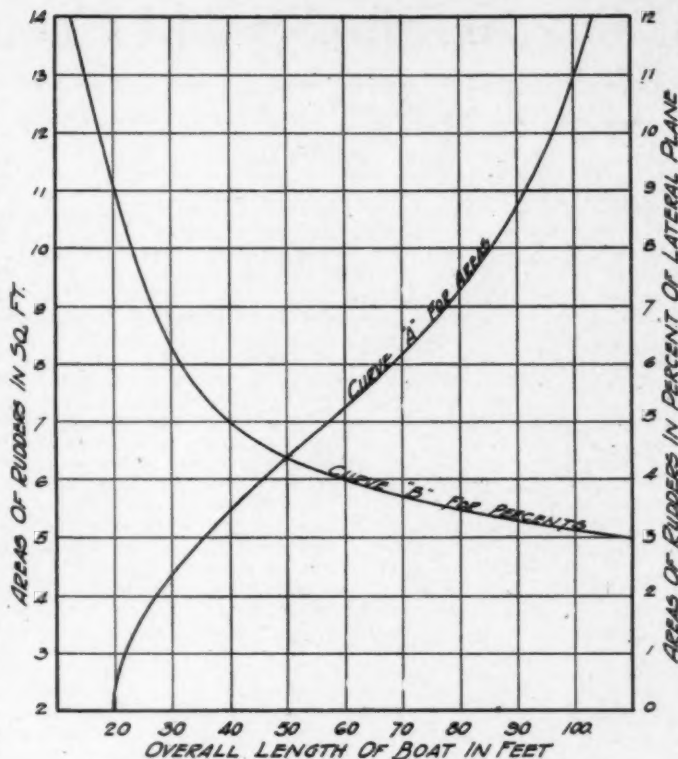


FIG. 7. CURVES FOR RUDDER AREAS.



FIG. 6. SHADED AREA SHOWS LATERAL PLANE.

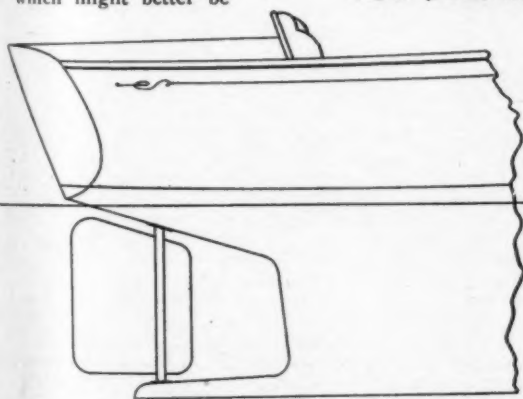


FIG. 1.

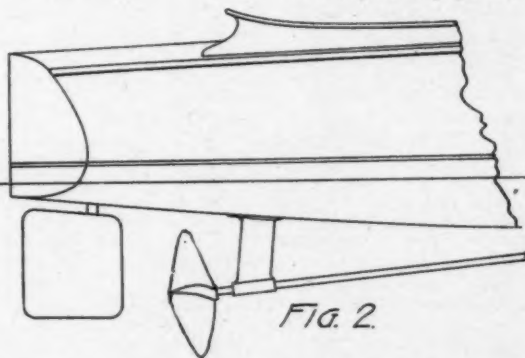


FIG. 2.

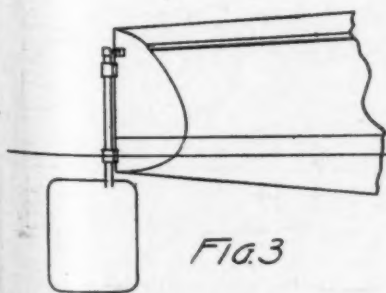


FIG. 3.

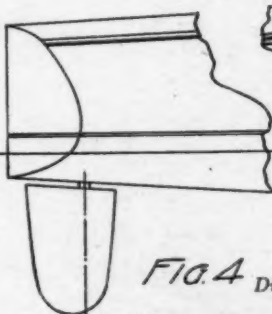


FIG. 4.

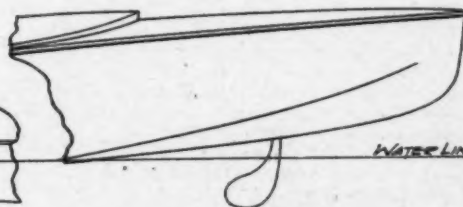


FIG. 5.

Diagrams and Curves devised by J. A. W. for determining the proper rudder size



# You Can Increase the Speed of Your Boat

Some Propeller Facts and Formulae Which if Followed  
Will Raise the Efficiency of Your Whole Outfit

By Horace Munson Decker

A GOOD power boat—the one you can be proud of—is the result of the union of hull and engine by the right propeller. While it is true that slow, heavy engines belong in slow, heavy boats, and high-speed engines in light, fast boats, yet rather uncongenial partners can be made into a lively, able power boat by the right arbitrator. And I am going to tell you how to choose a propeller for your boat, or improve the one you now have. We want any change or adjustment that brings greater speed without too great an expense for fuel burned, or that gives the same speed with a saving in fuel. If your proposition is a high-powered racer where economy is secondary, you will find here suggestions that may help your speed.

In the first place, each time the engine explodes, it accelerates and acts through the shaft to the propeller blades, causing them to kick the water astern and the boat ahead. The pressure of the gases on the piston is balanced by the pressure of the blades on the water. In between explosions, the propeller is turned idly by the flywheel without any thrust, or forward push. You can prove this statement on any power boat. The forward or idle collar of the thrust bearing can be turned easily by hand while the engine is running; except, just as the explosions occur in the cylinder and the propeller responds with a kick forward. The collar goes around by hitches that are timed with the explosions. And I think this propulsion by kicks is the reason why dished or increased-pitch, propeller blades are most effective.

Of course, this kicking the water astern, is all lost motion and waste. It is called slip. A lesser source of loss is the resistance of the edges and water friction on the surface of the blades. This loss and consideration of the draft put a limit on the size of the propeller.

Boats that waste too much power in slip are common. The engine turns up fast, and the boat leaves a strong propeller wake astern like a tug with a tow; also the boat does not get away briskly, and acts sluggish in a head sea. The propeller may be too small, or the blades may need truing and dishing. If your propeller is too small, the only way to reduce the slip is to use a bigger one. Increase of pitch or more blades will not help at all. You must have longer blades that reach out further from the shaft and act on a much larger weight of water. When the full speed slip is low, the boat will get under way quickly, act good in rough water, and show no propeller wake.

Slip, or the difference between the screw travel and the speed of the boat, should be less than twenty-five per cent. Screw travel is the distance the boat moves plus the distance the water moves in the opposite direction.

To figure the slip of the boat's propeller, we must know what the pitch of the blades is. If we took the propeller and its shaft out of the boat and buried the propeller in mud or clay; then, on turning the shaft, the propeller and shaft will move endwise like a bolt in a nut. And one complete turn of the propeller and shaft will cause a movement equal in distance to the pitch. The endwise thrust is caused by the angle of the blades. If the blades were square with the shaft like a circular saw, there would be zero pitch and no thrust. And if the blades were parallel to the shaft, there would be infinity pitch and again no thrust.

Pitch is the measure of angle of the blades—the amount they are out of square with the shaft—and is usually given in inches, but is often stated as so-many times the diameter of the propeller. For power boats driven by internal combustion engines, the pitch is usually from one to three times the diameter; and the angle at the other ends or tips of the blades is about twenty degrees in the low-pitch propeller and forty-five degrees in the high-pitch one.

High-pitch screws belong on light-weight, high-power runabouts and racers where the life of the engine and the gasoline bills are not considered. But, whether the speed merchant must beat a rating formula or outrun the other fellow, his propeller blades are the legs he goes "over the top" on; and their efficiency is essential. A three-bladed

screw is standard; otherwise, the same principles apply in selecting and adjusting the propeller.

For working boats, launches, cruisers, and auxiliaries, a two-bladed screw with the diameter equal to the pitch is almost standard.

With the low-pitch, two-bladed screw, a blade cuts through the water for each half-diameter of screw travel, and the two blades get all the reaction the water can give. A third blade would drag. But three blades are needed where the ratio of pitch to diameter is raised to one-and-a-half and beyond, and on tow boats and sea boats, or where the propeller must work behind a heavy skag.

All propeller blades should be straight, or radial, with the greatest width at the outer end and equal to one-third the diameter of the propeller.

Manufacturers will try to make popular some pretty shape of wheel—they trim the blades away to round, or oval, or shark fin, or question mark outlines. Also, they seem possessed to rake the blades aft; so that the hub is ahead, and the blades incline back. None of these fads and fancies will test up in efficiency with the straight, triangular-bladed screw. I mean that, for a given diameter, the V-shaped blade without any rake gives the best performance. A square inch of blade surface near the end or tip, is worth two square inches half way in to the shaft. Why trim it away? And there is no practical reason for raking the blades aft. Blades that rake aft make a disturbed wake and are not as good as straight blades; however, I have seen a noticeable benefit from a little, forward rake.

Suppose your boat is making fairly-satisfactory speed, your engine turning up moderately, and your propeller seems to be doing well; but you are anxious to improve your boat's performance in any way. If your boat is dragging a stern wave now, the speed cannot be improved; but it is a safe bet that we can adjust your propeller so that the engine can run slower and thereby save fuel, wear and tear, and vibration, and yet go just as fast. If your boat is not dragging a stern wave, we will make it go faster by touching up the propeller.

When a boat has a wave-making form of stern, it will begin to pick up a stern wave and settle by the stern at a certain speed which I call its Economical Speed Limit. Boats with hollow waterlines astern, and fantails, and overhang transoms, and speed models with the tuck under water, are all subject to this drag. This speed limit raises with the length of the load waterline. The longer the boat, the higher the speed limit. One and one half times the square root of the load waterline is your economical limit in miles per hour. Any hull can be driven faster than its limit; but it will take three to five times as much power to add a half mile an hour just over the limit than was needed to gain the last mile below it. You waste your power making waves. So don't load your boat with too much engine. My experience is that  $4\frac{1}{2}$  h.p. per ton of displacement, or actual weight, will drive any boat up to its economical speed in smooth water.

In getting your propeller off ready for examination, please do not batter up the hub. The hub is dressed-off on the ends when the shaft hole is bored, and you need that squared surface to fair the blades by.

Place the wheel with its after or working face down on a faired surface or table. You may have to block under the hub to get the blades clear of the surface. Adjust a bevel or stiff-pointed carpenter's rule to the angle of the after face of one blade on a line about an inch in from the tip, and then compare this angle on the other blade or blades. You will probably find them all different and consequently working against each other. They must be twisted to the same angle. And does your straight-edge touch the surface all the way across, or worse—only touch in the middle? The after or working face of each blade must be dished one-eighth inch on a blade six inches across. This gives increased pitch, your straight-edge only touches the leading and following edges, and the angle is the average pitch.

(Continued on page 88)

# Tern, a 32-Foot Yawl-Rig Motor Boat

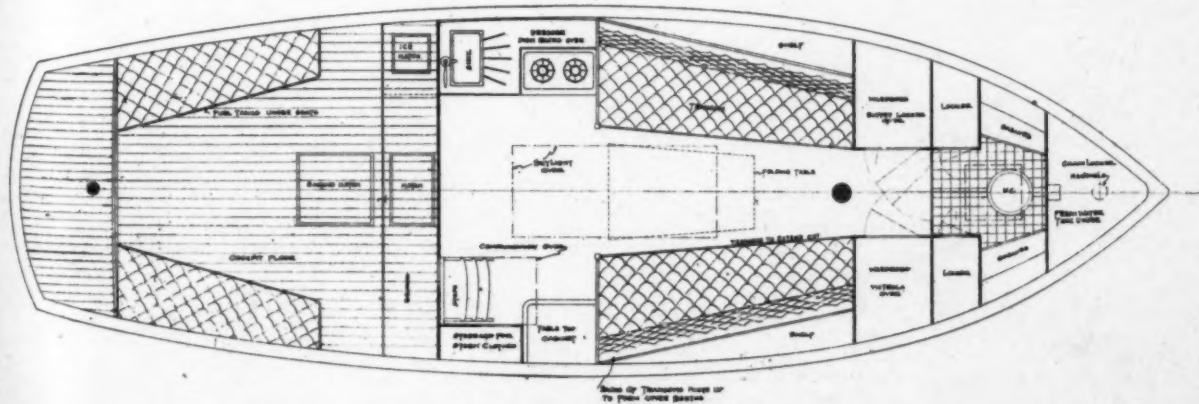
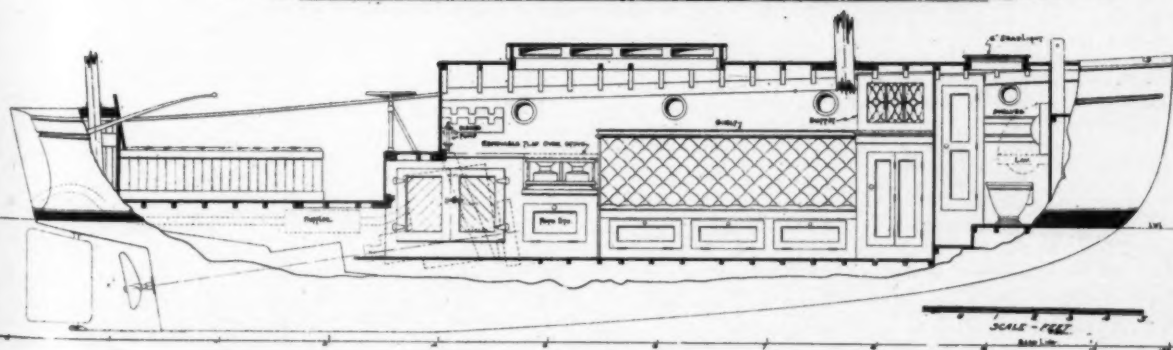
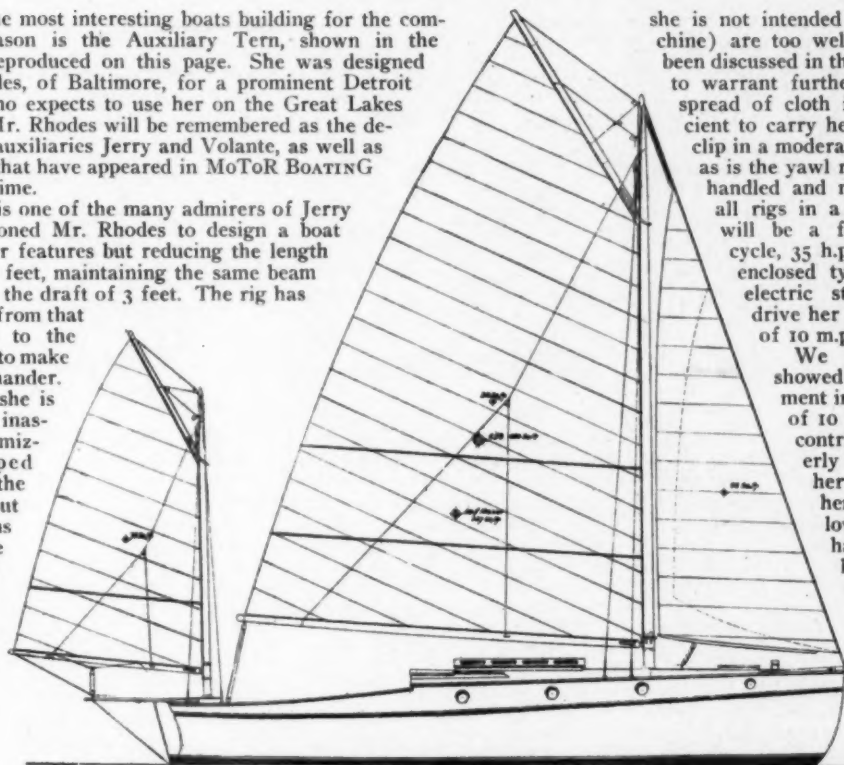
An Attractive Design for a Big Small Boat Which Embodies All the Good Points of Both Motor and Sail Craft

ONE of the most interesting boats building for the coming season is the Auxiliary Tern, shown in the plans reproduced on this page. She was designed by P. L. Rhodes, of Baltimore, for a prominent Detroit yachtsman, who expects to use her on the Great Lakes this season. Mr. Rhodes will be remembered as the designer of the auxiliaries Jerry and Volante, as well as other designs that have appeared in *MoToR BOATING* from time to time.

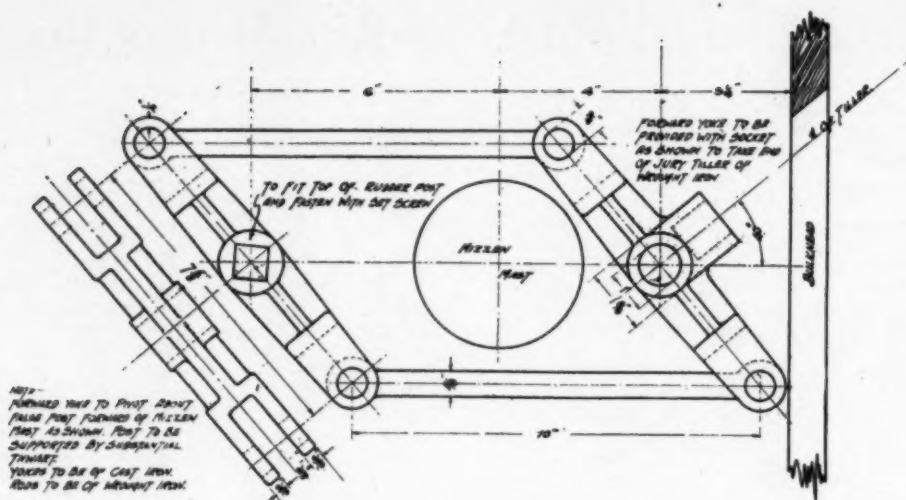
The owner is one of the many admirers of Jerry and commissioned Mr. Rhodes to design a boat embodying her features but reducing the length from 40 to 32 feet, maintaining the same beam of 10 feet and the draft of 3 feet. The rig has been changed from that of the sloop to the yawl in order to make her a single-hander. Theoretically she is ketch rigged, inasmuch as the mizzen is stepped forward of the rudder-post, but the proportions of cloth are such that she is virtually a yawl. The advantages of the yawl rig for cruising (for sooth,

she is not intended for a racing machine) are too well known and have been discussed in these pages too often to warrant further discussion. Her spread of cloth is ample and sufficient to carry her along at a lively clip in a moderate breeze. Divided, as is the yawl rig, it is very easily handled and much the safest of all rigs in a blow. Her power will be a four-cylinder, four-cycle, 35 h.p. motor of the all-enclosed type, equipped with electric starter, which will drive her at a cruising speed of 10 m.p.h.

We think the owner showed very good judgment in specifying a beam of 10 feet. This not only contributes to her weatherly qualities but gives her unusually comprehensive cabin space below. Unlike Jerry, she has no complete bulkheads within the cabin, save that segregating the toilet forward. The separation of the galley from the saloon is effected by the par-



Outboard profile with inboard and arrangement plans of the 32-foot auxiliary motor boat



DETAIL OF AUXILIARY STEERING GEAR An ingenious arrangement of the steering gear

tial bulkhead as shown on the plans. It is not wise to honeycomb the cabins of boats under the forty-foot length as it hampers proper ventilation, a thing so essential to comfort. Ventilation is secured by the large ports, the booby-hatch forward, the companionway and the unusually large skylight.

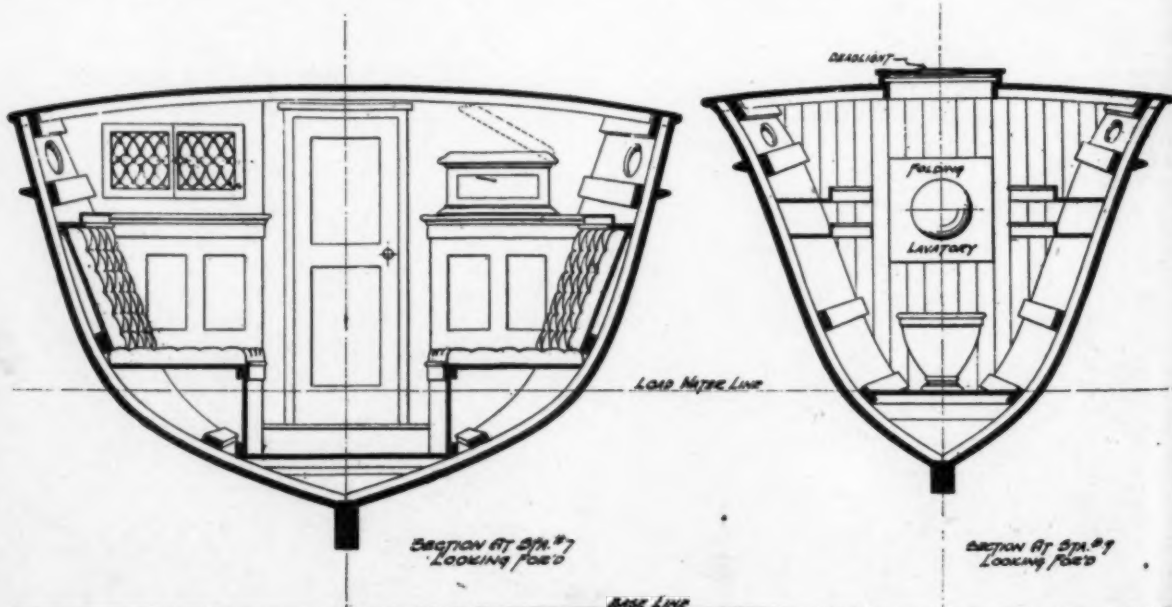
The general lay-out of the cabin follows closely along the lines of previous boats by this designer, notably *Volante*. Entrance to the cabin is made by way of the companion ladder to starboard. Immediately beside the ladder is the storage for storm clothes, which eliminates the necessity of carrying wet clothes into the cabin and mussing up things in general. Just forward is the cabinet with table top and then the partial bulkhead. To port one finds the galley proper. The large ice-box is iced from the hatch through the bridge deck, thereby eliminating another nuisance, that of carrying dripping ice into the cabin. Just forward is the stove, sink and pan locker, with dish racks above. The sunken arrangement of the stove is novel. When not in use the stove is covered with a flap, which greatly increases the dresser space.

The saloon is unusually large and roomy and has all the

comforts of home, including the Victrola, which one finds surmounting the starboard wardrobe. The port wardrobe carries a buffet locker with leaded-glass doors and windows. These wardrobes are large and take clothes full length. Aft these are the full-length transom berths, the backs of which hinge up to form upper berths, giving comfortable accommodations for a party of four even for extended cruises. Above the transoms are large shelves for books, pipes, odds and ends. In the center is a folding table mounted upon pipe stanchions, which adds materially to the comfort below; additional locker space is had from the lockers below the transoms.

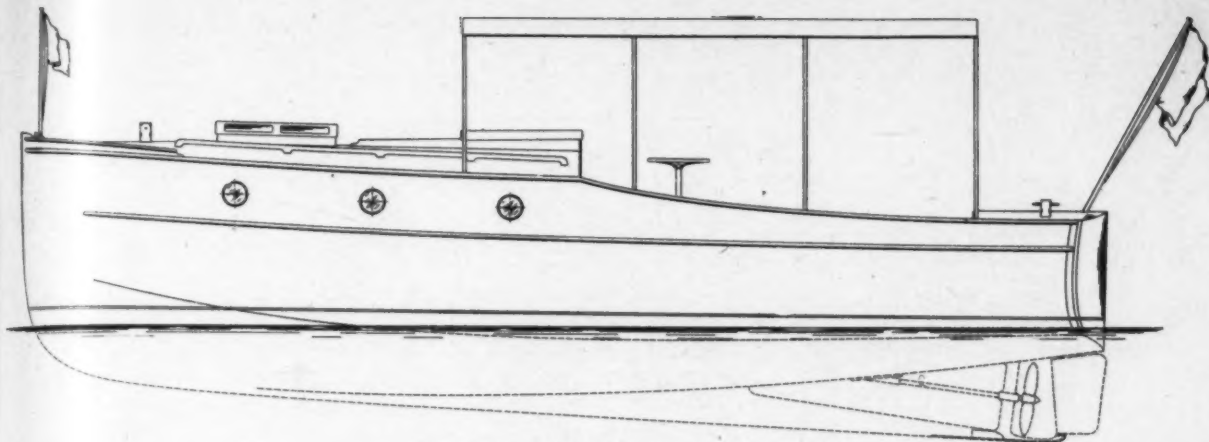
Forward of the saloon is the toilet with its shelves, lockers, and folding lavatory. It is ventilated by the booby-hatch and lighted by two ports and a deadlight in the hatch cover. The chain-locker and fresh-water tank are located in the fore peak forward of the toilet.

*Tern* is truly a step in the right direction. She is a good, wholesome motor cruiser and a very able sailer. She is the embodiment of comfort and safety and just about meets the average yachtsman's pocketbook.



Sections of *Tern* at stations No. 7 and No. 9





Profile of 25-foot Hand V-bottom cruiser Zenith

## Zenith, a Hand 25-Foot Cruiser

Designed by Wm. H. Hand, Jr.

Exclusively for MoToR Boating

**N**OW, who would like a fine little cruiser? We have had plans for runabouts in all sizes from 15 feet up and also a cruiser in the larger sizes. Here are some plans for a crackerjack little cruiser of only 25 feet length. Imagine the joys of sailing about on a dandy little boat like this fitted with a 20 h. p. Kermath motor neatly tucked away under the bridge. Just think of the many happy days to be spent on this little boat in cruising about from one picturesque harbor to the next. Or what could be more fun than going in all the club motor boat races and winning the prizes. The busy little motor with which this boat is to be equipped is capable of pushing it along on a merry clip. One that you need not be ashamed of. You will never be the last boat back with this outfit.

The hull is light and strong and the design is perfect. Only a designer of the skill and experience of Wm. H. Hand, Jr., is able to turn out a boat with such a multitude of desirable features as this one possesses. There are comfortable berths, a capacious galley, and pantry where the meals can be prepared in comfort. A roomy toilet and numerous other items. Under the cockpit floor are the gasoline tanks and a large flush hatch makes this lazarette space easily accessible

The plans presented this month are the fifth in the series to be published monthly from the board of the world-famous designer of V-bottom boats, William H. Hand, Jr. We are proud to be able to give our readers a brand new, complete set of plans each month. The plans as published are as complete as if they were prepared for your individual use.

Mr. Hand is designing for no other publication, and an exclusive design is to be published every month in MoToR Boating throughout the year 1920. Since no back numbers will be available, it is well to make provisions to secure your copies in advance.

This little 25-foot V-bottom cruiser Zenith is about as fine a boat as it is possible to find.

Many boats are being built from plans published earlier in the series, and without a doubt this little cruiser will be duplicated in many parts of the country.

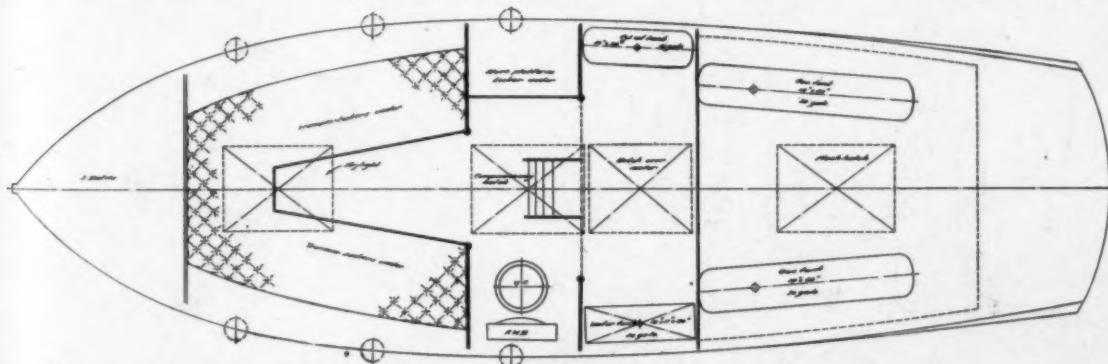
for the stowage of baggage and luggage.

In order to prevent the excessive heat of the summer weather or the rains which occur during the period of construction from doing any injury to the hull while in an uncompleted state it is necessary to do the actual work under cover. A suitable shed should be constructed over the locality where the work is to be undertaken and a tight roof built over the boat. This need not be an elaborate structure but can be made satisfactorily with plain materials and tar paper covering. Its slight first cost will be many times repaid in allowing of faster work through not being hindered by bad weather.

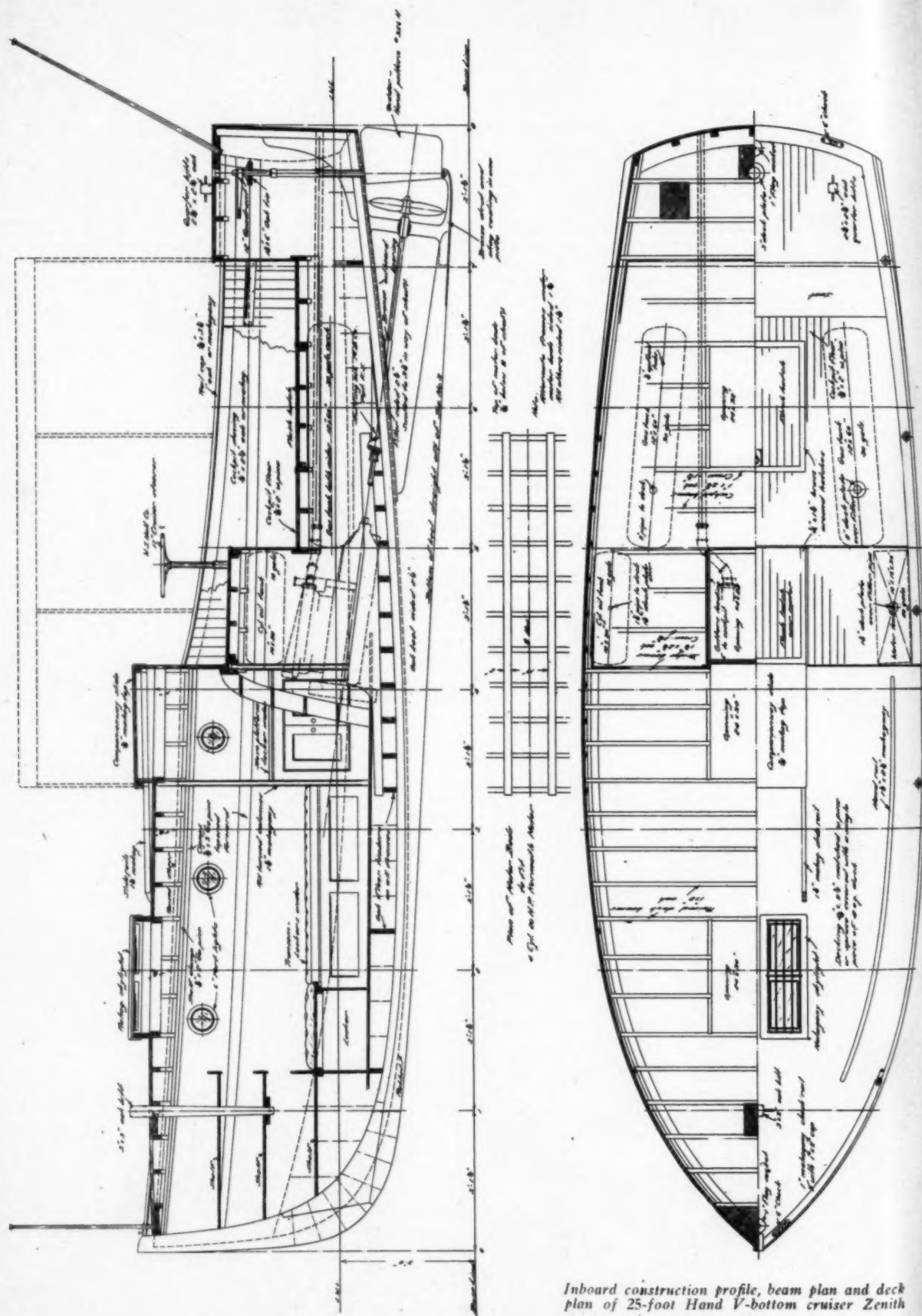
For the professional builder it is perhaps unnecessary to say anything further on how to proceed with the construction. Since this

is a boat well within the capacity of the amateur builder we will have to amplify our instructions for his benefit.

Perhaps the first step will be to make full size paper patterns of the stern transom and keel and later of the various different stations. Bear in mind that all dimensions laid off from the table of offsets are to the outside of the planking and its thickness must be deducted in order to arrive at the outside of the frames. Further the molds on



Arrangement plan of 25-foot Hand V-bottom cruiser Zenith



Stations	Heights										Half Breadths										Diags.	
	R Sheer	No. of Bridges	Chine	But. 1	But. 2	But. 3	But. 4	But. 5	But. 6	But. 7	But. 8	But. 9	But. 10	But. 11	But. 12	But. 13	But. 14	But. 15	But. 16	But. 17	A	B
0	7-1-6	5-9-0	4-7-0																			
1	6-11-0	5-6-2	3-8-7	3-3-2	5-11-5	1-10-3	1-7-6	1-7-4	2-5-4	2-4-3	2-6-0	1-9-2	1-7-2	1-5-4	0-9-1	1-5-3	"				1-0-7	0-7-7
2	6-8-5	5-4-0	3-2-1	2-3-1	2-11-3	1-6-2	1-5-2	1-4-1	3-5-4		3-1-4	2-10-6	2-8-6	2-6-7	2-0-6	2-4-7	"				1-11-2	1-2-3
3	6-6-6	5-2-2	2-10-3	1-10-6	2-4-6	1-5-0	1-4-3	1-2-0	3-9-5		3-8-0	3-6-2	3-4-7	3-3-2	3-0-3	2-11-6	"				2-5-6	1-6-0
4	6-5-5	2-1-0	2-8-6	1-10-0	2-2-7	1-5-4	1-5-0		3-10-4		3-10-1	3-9-2	3-8-3	3-7-1	3-4-4	3-3-0	"				2-8-2	1-7-0
5	5-11-4	5-0-0	2-8-3	1-11-0	2-3-1	1-7-2	1-6-6		3-9-0			3-8-7	3-8-4	3-7-4	3-5-2	3-3-3	"					
6	5-8-0	4-11-1	2-8-6	2-1-1	2-4-6	1-9-7	1-9-3		3-5-5			3-5-7	3-6-0	3-5-3	3-3-0	3-1-4	0-1-5					
7	5-6-2	4-10-4	2-9-3	2-4-1	2-1-1	2-1-5	2-1-2	0-5-4	3-0-7			3-1-3	3-2-2	3-1-7	2-10-7	2-9-2	0-1-2					
8	5-6-0	4-10-0	2-10-2	2-7-6	2-9-5	2-6-1	2-5-6		2-6-4			2-7-2	2-8-6	2-8-6	2-5-0	2-3-4	"					

Note - All dimensions given in feet, inches and eighths to the outside of planking.  
All heights are above base line. Water lines spaced 9" Buttocks spaced 12"  
Diagonals and stations per plan of lines.

Table of offsets for 25-foot Hand V-bottom cruiser Zenith

which the frames are bent will have to be made to the inside dimensions of the frames, a still further deduction from the tabulated figures.

This job is to be one with steam bent frames and the construction will differ somewhat from the previous boats. It will be necessary in this case after the keel, stem and transom assembly is completed to make a set of molds, one for each station point and then run a series of battens forward and aft to serve as forms around which to bend the frames. These as the specifications call for are  $\frac{3}{8}$ x1 $\frac{1}{2}$ -inch white oak and are steamed thoroughly in a suitable steam box and then bent to shape, fastened and clamped to fit.

The specifications which follow give all necessary sizes of fastenings and detail of that nature.

Extra heavy frames are to be supplied in the way of the engine foundation to re-enforce the hull here.

Since it is not practicable to bend the frames so sharply as to secure a sharp chine, a piece is added outside of the frames to form the corner. Filling pieces of suitable shape are used adjacent to the chine piece.

Main clamps of  $\frac{3}{8}$ x3-inch Georgia pine are securely set inside the frames from stem to stern. Deck beams and cockpit floor beams are to be halved at ends and set into clamps and fastened.

The planking will be done with white cedar and is to be not less than  $\frac{3}{4}$  inches thick. Outside fastenings are to

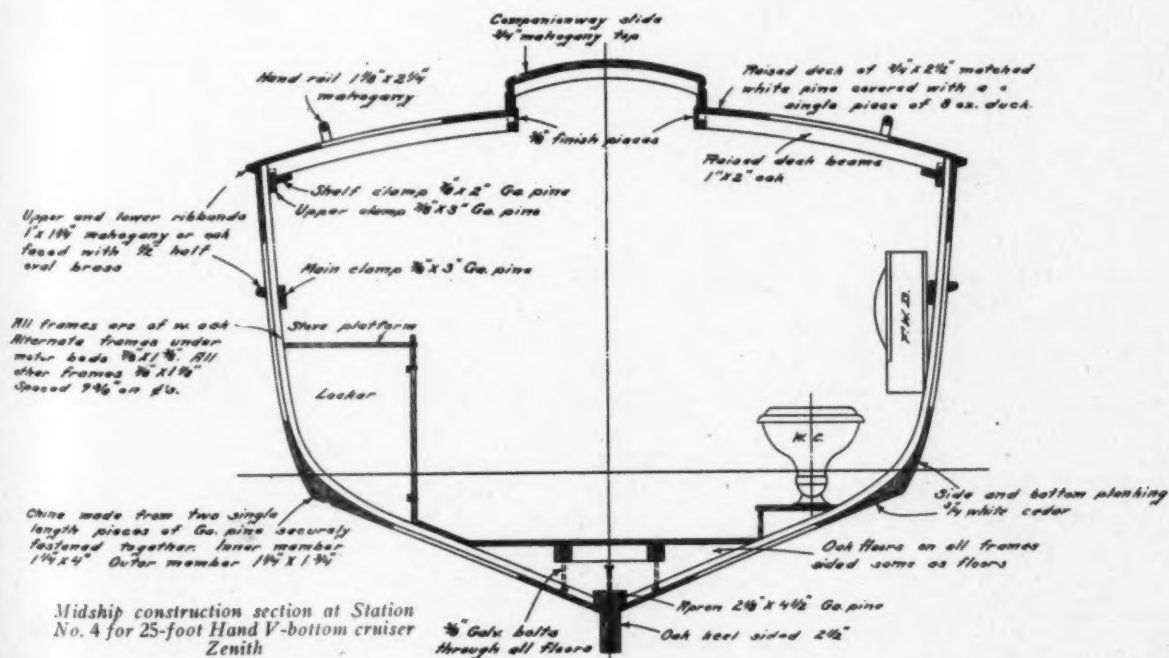
be drilled for wooden bungs. Planking to make a neat fit at points where it meets the chine which is to be beveled for the planking.

The motor bed is to be carefully installed and should be carefully fitted to frames. Cover the deck beams with  $\frac{3}{4}$ x2 $\frac{1}{2}$ -inch white pine decking with nails let in. After this is thoroughly planed smooth it is to be covered with a piece of 8-oz. canvas applied as specified. Seams in bridge deck and cockpit floor to be payed with black marine glue.

Items of exterior and interior joinerwork should be completed in turn as shown on the drawings and as covered in the specifications. Numerous details such as companionway slide, skylight, hand rails, bitts, hatches, bulkheads, doors, galley and trim all come under this head and use up lots of time in the making. The hull is apt to make rapid progress up to the point where the plank is all applied, from here on the visible progress is less rapid and it is now where the enthusiasm must not be allowed to run out. All the many details yet to come should be given every bit as much care as the earlier assembly of the hull proper.

Such items as tanks, steering gear, metal rudder, strut, air ports, and general miscellaneous hardware can be readily purchased as required.

The little Kermath motor specified comes equipped with electric equipment and has ample capacity to keep the battery properly charged so that electric light will be available.





Painting of the hull and interior may be as specified later or as desired but care should be exercised to make a good job of this as a good job of hull construction can be made to look very ordinary by hastily applied paint.

Complete specifications for all items entering in on the construction of this boat follow:

## Specifications for 25-Foot V-Bottom Cruiser Zenith

Prepared Especially for  
MoToR BoatinG

By Wm. H. Hand, Jr., N. A.  
New Bedford, Mass.

### Dimensions

Length, overall, 25 feet; beam, extreme, 7 feet 9 inches; draft, 2 feet  $7\frac{1}{2}$  inches.

### General Conditions

The yacht is to be built under suitable housing. All materials and manufactured articles and articles of construction, of whatever kind, and in every department, are to be the best in quality for their respective purposes.

All workmanship must be of the first class and the whole executed under the direction and to the satisfaction of the owner or his duly authorized representative.

Work not shown by the drawings, or specified herein, but which is usual or necessary for a boat of this type, is to be done by the builder without extra charge.

### Frame—Keel

To be of white oak sided  $2\frac{1}{4}$  inches and molded as shown, swelled to  $3\frac{1}{4}$  inches in way of shaft.

### Filler

To be of white oak, sided  $2\frac{1}{4}$  inches and molded as shown, swelled to  $3\frac{1}{4}$  inches in way of shaft.

### Apron

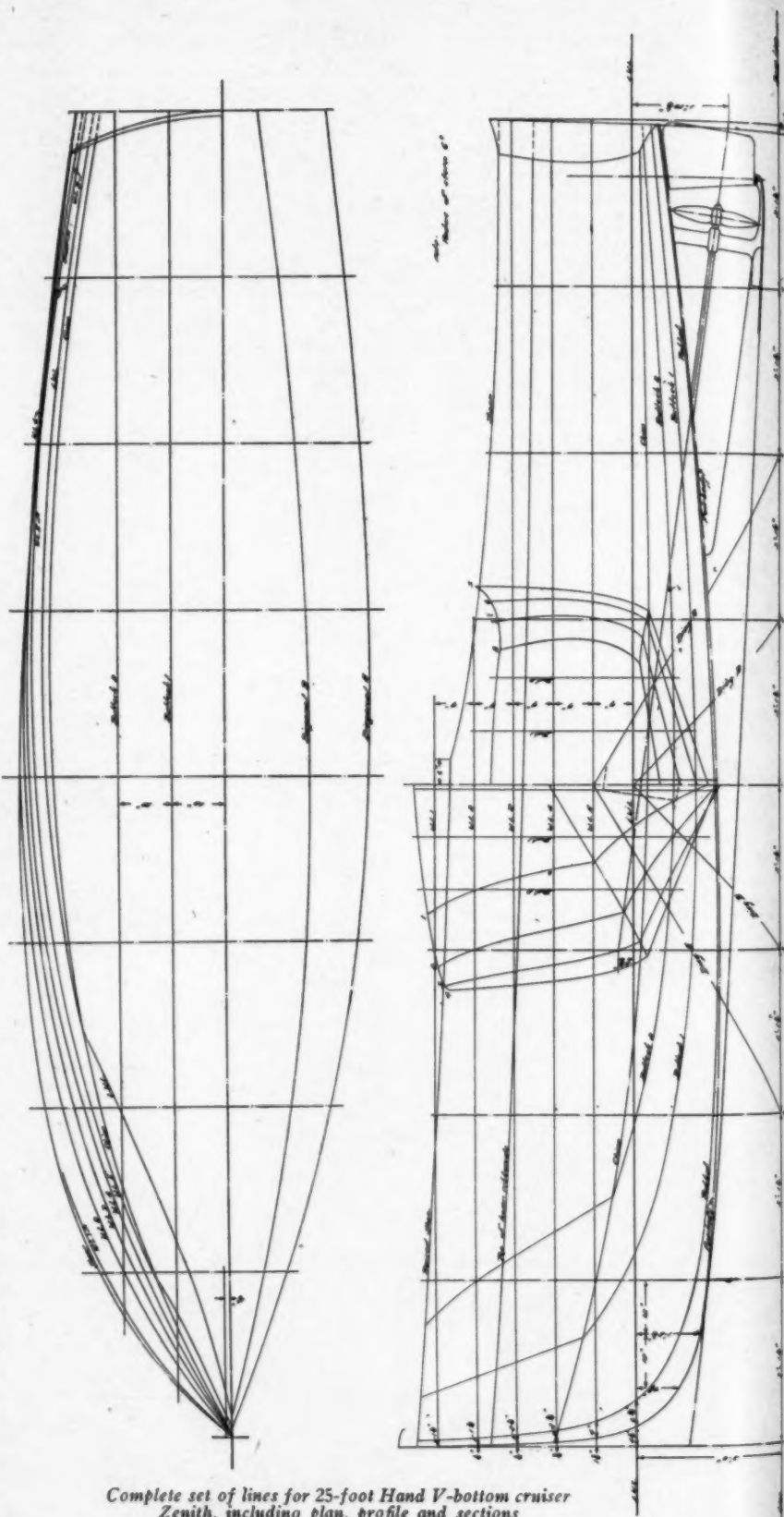
To be of clear straight-grained Georgia pine  $2\frac{1}{4} \times 4\frac{1}{2}$  inches securely fastened to keel. To be properly beveled to receive gar-board strake of planking.

### Stem

To be of two pieces of oak or hackmatack, sided  $2\frac{1}{2}$ -inch natural crook, scarphed and bolted as indicated. To be rabbeted for planking and beaded to carry out all lines of same above L.W.L. except at head which is to be finished square with a brass  $\frac{3}{4}$ -inch half round stem band, extending from top of head to a point about 2 feet aft of fore end of waterline and neatly filed to show as narrow a face as is practical at and near L.W.L. Stem to be molded as indicated.

### Stern

To be double planked of white cedar, total thickness  $\frac{3}{4}$ -inch with white lead between, bent to form



Complete set of lines for 25-foot Hand V-bottom cruiser  
Zenith, including plan, profile and sections

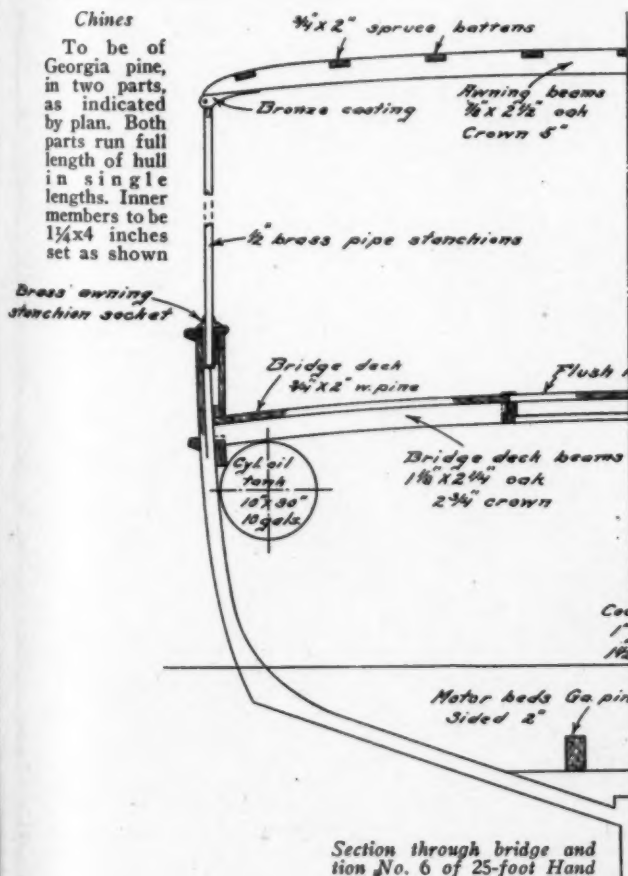
on 6-foot radius. It will be supported in center by indicated hackmatack knee and reinforced at sides and bottom with oak back rabbet pieces for planking fastenings. There will be two vertical cleats in each half of stern as indicated. Planking to run by transom and be properly finished with angle brass trim.

#### Frames

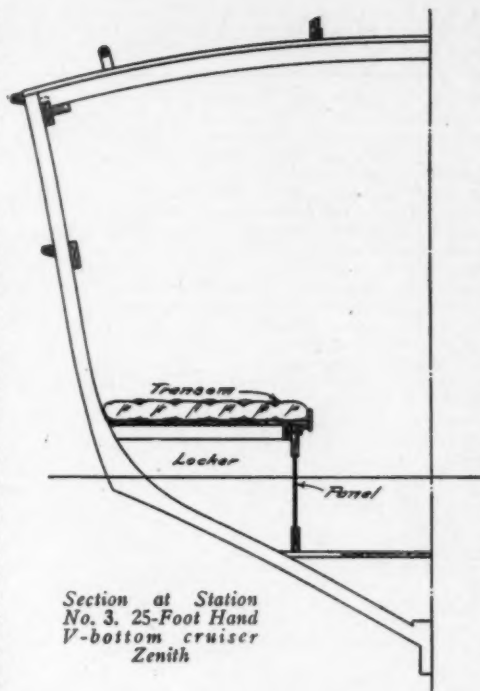
All frames to be of white oak steam bent, spaced  $9\frac{3}{4}$  inches on centers. Alternate frames under motor beds to be  $\frac{3}{4} \times 1\frac{3}{4}$  inches. All other frames  $\frac{3}{4} \times 1\frac{1}{2}$  inches. Heels of frames to be boxed into apron. All floor timbers to be sided to correspond with frames and carefully fitted on top of same. To be securely fastened to apron and keel with  $\frac{3}{8}$ -inch galvanized bolts fitted with nuts and washers through heavy floors and  $\frac{1}{4}$ -inch bolts through light floors. Frames to have the required filler pieces of white pine above and below chines as shown in cross section planes. Frames to be fastened to chines with 3/16-inch or No. 7 copper wire nails and where the bottom edge of side planking and top edge of bottom planking join the chines there will be a No. 10 copper wire nail through planking chine and frame, making three through fastenings through frame and chine. All copper fastenings will be properly riveted over copper burrs. There will be suitable limbers under all floors to lead bilge water to pump.

#### Chines

To be of Georgia pine, in two parts, as indicated by plan. Both parts run full length of hull in single lengths. Inner members to be  $1\frac{1}{4} \times 4$  inches set as shown



Section through bridge and station No. 6 of 25-foot Hand



Section at Station No. 3, 25-Foot Hand V-bottom cruiser Zenith

and properly beveled to receive planking. Outer member of Georgia pine  $1\frac{1}{4} \times 1\frac{3}{4}$  inches beveled to form square caulking seam, fastened securely to inner member with copper rivets as above specified.

#### Clamps

Main clamps to be of Georgia or Oregon pine  $\frac{3}{8} \times 3$  inches set as shown and extending from stem to stern. There will be a clamp under beams of raised deck  $\frac{3}{8} \times 3$  inches, also a shelf clamp  $\frac{3}{8} \times 2$  inches. Clamps to be fastened to frames with No. 8 copper rivets, two in each frame.

#### Deck Beams

All beams to be of white oak, sawn to form. Those in deck in raised freeboard on crown height specified on plan. All other deck beams in bridge and aft decks to be sawn to form on a crown specified. Main deck beams in bridge deck and aft deck to be  $1\frac{1}{4} \times 2\frac{1}{4}$  inches. Raised-deck beams to be  $1 \times 2$  inches with ends halved into clamps and securely fastened. Cockpit beams to be  $1 \times 2\frac{1}{4}$  inches.

#### Motor Beds

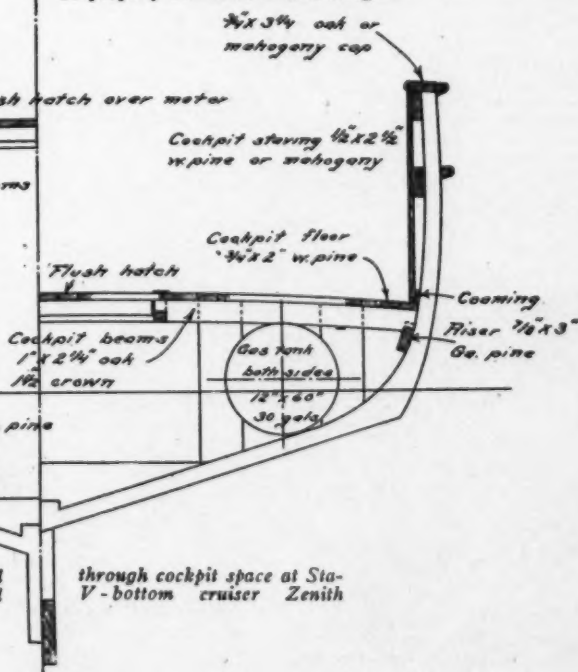
To be of Georgia pine, set and bolted in accordance with plan. All parts to be very carefully and securely fitted together as indicated, and all bolts provided with nuts and to be bolted to beds with galvanized heavy washers. Motor to be bolted to beds with nuts on under side.

#### Frame in General

All exposed edges of stringers, clamps, frames, chines, deck beams, etc., to be neatly finished with chamfered edges. All parts to be carefully fitted to bear evenly and securely fastened as specified. Short beams at sides of motor hatches to be halved into oak carlins  $1\frac{1}{4} \times 2\frac{1}{4}$  inches, set as indicated, with ends notched into beams at ends.

#### Planking

The hull will be planked with white cedar to finish not less than  $\frac{3}{4}$ -inch. To be fastened with No. 11 copper wire nails riveted over copper burrs. All outside fastenings will be properly countersunk and bunged.



Section through cockpit space at Station V-bottom cruiser Zenith

# The Way We Would Do It

**E**VERY month MoToR BoatinG's staff of experts answers thousands of inquiries about boats, engines, accessories and, in fact, everything marine. There is hardly a branch of the sport or industry on which they are not constantly being asked to give their opinions. They are very glad to do this, as well as to be of whatever service they can to MoToR BoatinG's subscribers and readers.

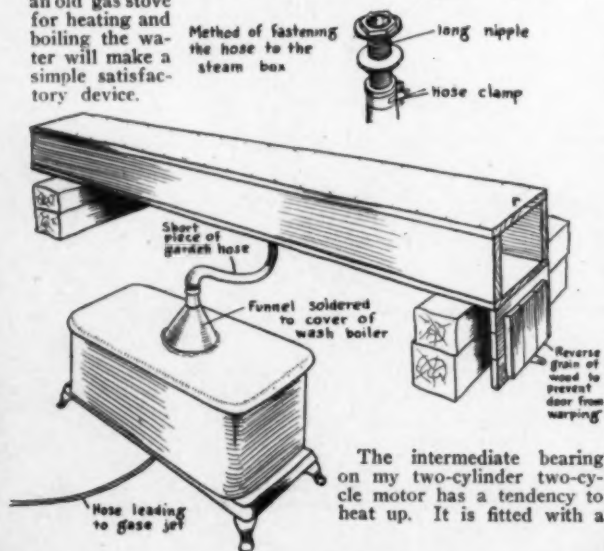
Quite naturally, many requests for information are received on subjects which are not of universal interest to every motor boatman. This, as well as the fact that it would be a physical impossibility to print answers to all questions received, makes it necessary for us to follow the rule of only printing answers to the few most important and interesting questions. However, we always give a reply by mail, so if you are perplexed about any questions pertaining to boating don't hesitate to write to the "Way We Would Do It" Editor.

**I**AM planning to install a signal mast on my 32-foot cruiser, can you offer any suggestions as to details of construction?—F. J. W.

The details of fastenings and connections can be made as shown in the illustration. Galvanized iron stays fastened to chain plates at sides and forward will hold the mast firmly. The foot piece should be well screw-fastened to the deck. Use a two-eye mast withe at the top of mast and at the ends of the yard and a three-eye withe under the yard for the stays.

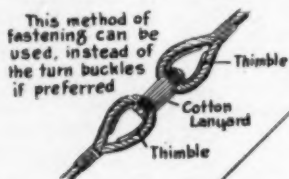
In bending frames for a small boat which I am building I have been unable to devise a satisfactory steam box; will you not help me to build a suitable one?—I. M. P.

Our sketch adjoining will make clear the construction of a most suitable steam box. Use an old boiler and fashion an outlet in the cover, as shown, out of a funnel. Pipe up to the box with a short length of hose and you are ready to begin work. This is a low pressure outfit and will be safe, for should any pressure be generated it will raise the cover and relieve itself. The use of an old gas stove for heating and boiling the water will make a simple satisfactory device.

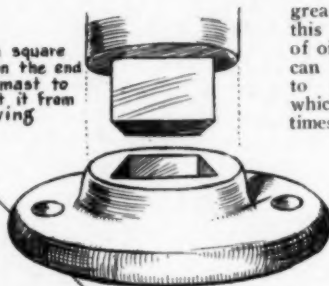
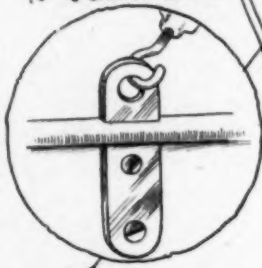


The intermediate bearing on my two-cylinder two-cycle motor has a tendency to heat up. It is fitted with a

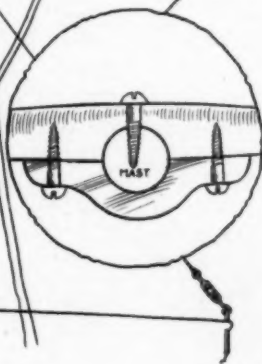
Make a square joint on the end of the mast to prevent it from revolving



A Substantial way of fastening the cables to the side of the boat



In fastening the yardarm to the mast this way, it makes a strong inexpensive job.



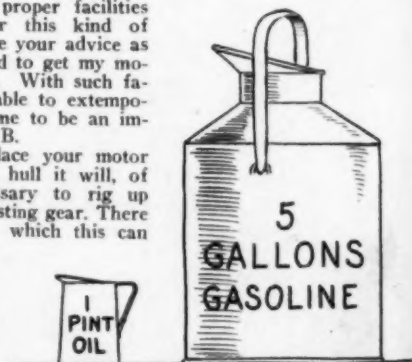
grease cup but apparently this is not a suitable way of oiling this bearing. What can be done to my motor to correct this trouble, which is very annoying at times?—W. E. C.

For the simplest system of lubricating all parts of a two-cycle motor we know of none superior to the method of adding the lubricating oil directly to the gasoline before it is put into the tank.

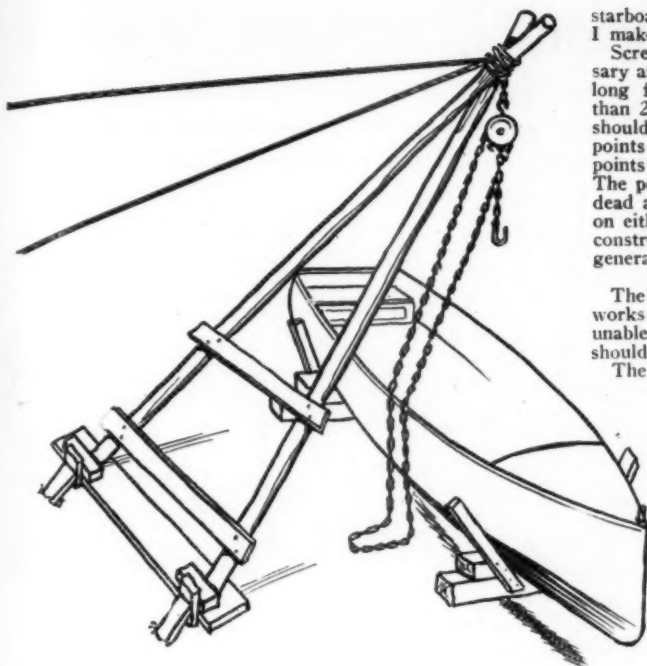
The correct proportion of oil to gasoline is in the ratio of one pint of oil to each five gallons of gasoline. Since this does not interfere with the vaporization of the gasoline, the minute globules of oil are carried along with the gas stream and deposited on all interior surfaces and blown into the bearings by the pressure in the crankcase. The method is in quite general use among all users of two-cycle motors and is a thoroughly practical remedy.

It is my intention to install a new motor in my 28-foot runabout. As I am not located near any yard where proper facilities are available for this kind of work I would like your advice as to how to proceed to get my motor into the boat. With such facilities as I am able to extemporize it seems to me to be an impossible job.—K. B.

In order to place your motor properly in your hull it will, of course, be necessary to rig up some form of hoisting gear. There are two ways in which this can be done. One makes use of a single pole commonly called a gin pole and the other makes use of two poles so laced together as to form an A frame. They are in the main identical. The foot of the pole or frame is located well back from the hull and the top is secured with guy lines to secure anchorage to the rear and sides of the frame. Two guy lines if properly placed are sufficient, but three or four may be necessary. The simplest form of hoisting gear is one of the several varieties of chain hoists. These have the advantage of holding the



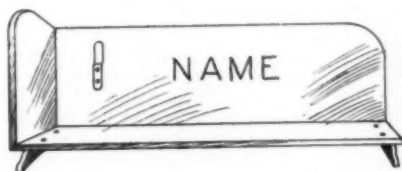




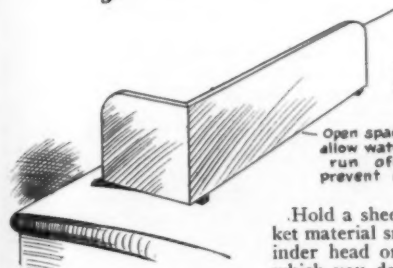
load stationary whenever it may be stopped. Most garages have one of these hoists and arrangements can readily be made for its use. The top of the hoist should be well inboard of the hull so that the motor will drop down vertically to its final position without requiring much shifting sideways. In hoisting the motor from the ground it is kept clear of the hull by a plank or two until it is high enough to clear coamings, etc. It is then allowed to swing inboard and lowered to its final position.

My small runabout is used occasionally at night. What type of electric lighting can I install which will be inexpensive to maintain and will serve for the light service that I require on a few evenings per month?—J. M. R.

The simplest and cheapest system of electric lighting is obtained by using a dozen dry cells and connecting them in series of four and then further connecting the series in multiple as shown on the diagram. A switch placed in the line near the batteries serves to open and close the circuit. Some six-volt, 2 c.p. lamps will be ample and there should be no difficulty in having ample lighting all season from one dozen cells. Of course, it is necessary to keep them dry and protected from moisture to get the best service.



Class 2  
Screens not  
less than  
18" long



Class 3  
Screen not  
less than  
24" long

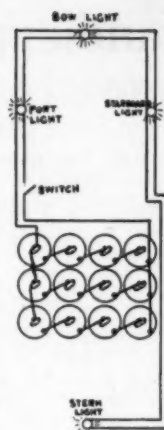
How can I make neat gaskets? I am overhauling my motor and need a number of gaskets to replace old ones.—E. M. T.

Hold a sheet of packing or gasket material snugly against the cylinder head or exhaust flange for which you desire a gasket. Then with a ball-peen hammer tap the edges of the casting gently, through the packing material. This will serve to cut out the proper shape and size gasket neatly and effectively. The ball end of the hammer is used for the bolt holes.

I have been told that I must carry screens on my port and

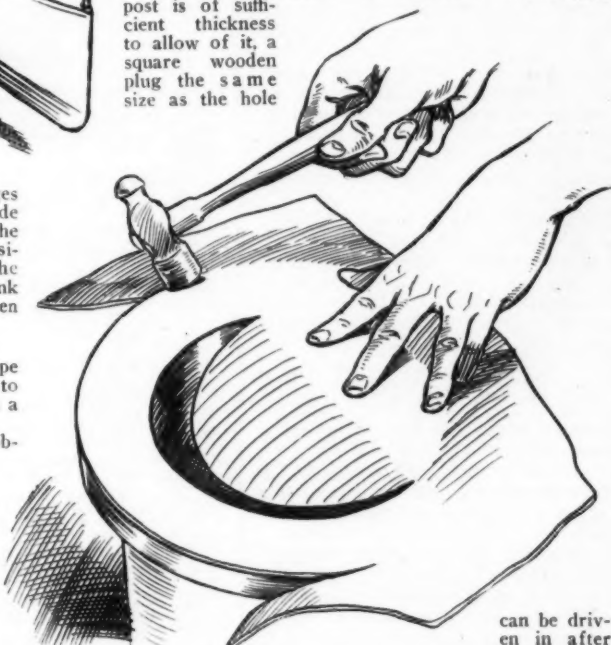
starboard lights. If this is so, how shall I make them?—A. R.

Screens on the sailing lights are necessary and should be not less than 18 inches long for boats in class 2, and not less than 24 inches in class 3. The bow light should be arranged to show from two points abaft the beam on one side to two points abaft the beam on the other side. The port and starboard lights show from dead ahead to two points abaft the beam on either side. The screen can be simply constructed and our sketch shows the general design.



The stuffing box on my 30-foot cruiser works loose occasionally and I have been unable to make it stay in place. What should I do to remedy this trouble?—A. M.

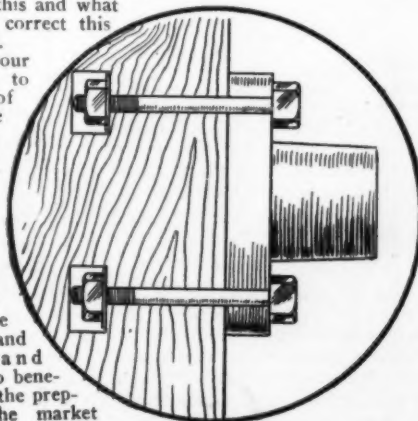
The simplest remedy for your trouble would be to cut two square holes in the stern post three to four inches in from the face of the post. The stuffing box can then be secured by two bronze bolts as shown and securely held in place. Washers should be put under the nuts on the inside ends of the bolts. If the stern post is of sufficient thickness to allow of it, a square wooden plug the same size as the hole



can be driven in after being covered with white lead to make a tight joint.

My motor troubles me by knocking and pounding quite hard when it gets warm and when I open the throttle more than three-quarters of the way. What is the cause of this and what is necessary to correct this trouble?—W. R.

Apparently your trouble is due to the presence of carbon in the combustion space of your motor. You can clear this out by scraping it off or by burning it out with the help of oxygen. Kerosene oil injected while the motor is hot and allowed to stand all night is also beneficial. Some of the preparations on the market today are very efficient.



# Handicap Cruiser Championship of North America

Valuable Perpetual Trophy Presented by the New York Athletic Club—First Race on Long Island Sound August 14—Open to Cruisers of Between 30 and 40 Feet Waterline Length—Challenges Already Received from Philadelphia and New York Clubs

THE New York Athletic Club through the Commodore of its yachting department, H. M. Williams, has presented a valuable perpetual trophy to the American Power-Boat Association to be raced for annually and emblematic of the handicap cruiser championship of North America. Outside of the hydroplane and speed-boat field the new trophy will represent the zenith in the racing world. The gift, coming as it does just at a time when interest in cruiser racing was never more intense, is bound to attract many entries.

The first race for the new trophy is scheduled to start on the morning of August 14. The course, which will be 50 miles in length, will be laid out on Long Island Sound with a starting point off Huckleberry Island and the finish line at Lloyd's Harbor with a turn somewhere down to the eastward. Complete details and circular of conditions may be had from the secretary of the American Power-Boat Association, Geo. C. Krusen, 529 North 15th St., Philadelphia, Pa., or from the editor of *MoToR BOATING*.

The complete Deed of Gift follows: The New York Athletic Club, having presented to the American Power-Boat Association a trophy for the purpose, the American Power-Boat Association offers this as a perpetual trophy, to be known as the New York Athletic Club trophy for Cruisers, representing the Handicap Cruiser Championship of North America, for the purpose of promoting handicap speed contests between cruisers of a wholesome character and improving and perfecting models and construction of internal combustion engines for cruisers and for developing the lines, designs, and usefulness of the cruiser type of motor boat, hereby sets forth and declares the terms and conditions which shall govern the tenure of said trophy and competitions therefor.

## ARTICLE I

This race shall be for the American Power-Boat Association Handicap Cruiser Championship of North America.

## ARTICLE II

Any Club or Association enrolled in the A. P. B. A. or any individual member thereof shall always have the right to challenge for this Championship Trophy and to run a race therefor provided such challenge shall be made and such race shall be run in accordance with the terms and conditions of this agreement.

## ARTICLE III

Races for this Championship Trophy shall be run under the rules and regulations of the American Power-Boat Association governing sanctioned races, as adopted or amended at the annual meeting of the Association preceding the race, unless otherwise provided in this Declaration of Trust. The race will be for cruisers as defined by the American Power-Boat Association or this Declaration of Trust.

## ARTICLE IV

The first race for this Championship Trophy shall be run from the New York Athletic Club, Travers Island, New York City, during the summer season of 1920. Subsequent matches shall be run each year between June 15 and September 15 at a place and time selected by the Club whose boat last won the championship.

## ARTICLE V

The race shall be managed by a Race Committee of five as follows: The three members of the Racing Commission of the American Power-Boat Association (or representatives appointed by them) one representative named by the holding Club and one representative named by the challenging Club.

## ARTICLE VI

All challenges must be in writing and forwarded to the secretary of the Club or person who last won the championship trophy, and a copy to the secretary of the Racing Commission of the American Power-Boat Association. To insure a contest one challenge must be delivered at least two months before the date set for the match. Subsequently, other clubs or persons may challenge and enter the same contest, but no challenge shall be received later than five days before the date set for the race. In case no challenge is made or received two months in advance of the race the Committee may at their discretion schedule the race and accept entries.

## ARTICLE VII

(a) The race shall be open to cruisers of not less than 30 feet waterline length or not more than 45 feet waterline length.

(b) The length of the course shall not be less than 50 or more than 125 nautical miles.

(c) At least 50 nautical miles of the course must be laid out in the open sea, sound or bay and shall be as free as possible from tidal currents of which local knowledge would afford undue advantage.

(d) The depth of water shall not be less than two fathoms in any part of the course.

(e) All boats must be fully equipped for cruising and in addition to the equipment provided by the American Power-Boat Association Racing Rules must carry cushions, blankets, ice-box, compass, two anchors with 20 fathoms of cable each, provisions for five days, charts and lead line. All equipment must be of such a nature

and quantity as will be carried by a boat in actual cruising trim for the number of crew on board in the race. All gasoline must be carried in fixed tanks permanently piped and a sufficient quantity to cover 125 per cent. of the course.

(f) Each club or person challenging shall name its representative boat or boats and shall file with the Race Committee

## Schedule of Principal Racing Dates, Season of 1920

(NOTE—Complete detailed information as to the following open races may be had by addressing the Chairman of the Race Committee of the Club in charge of the race.)

May 31—Adelphi Yacht Club, Carnival, Delaware River Yacht Racing Association.  
June 5—Camden Yacht Club, Regatta, Delaware River Yachtsmen's League.  
June 12—Westville Power-Boat Association, Regatta, Delaware River Yacht Racing Association.  
June 12—Opening Race of the Columbia Yacht Club, New York City, all classes.  
June 19—Wilmington Motor Boat Club, Cartledge Trophy, Delaware River Yacht Racing Association.  
June 26—Riverside Yacht Club, Regatta, Delaware River Yachtsmen's League.  
June 26—Sorsunda Race, Columbia Yacht Club, New York City.  
July 2—New York to Albany and Return Race, New York Motor Boat Club, 270 statute miles.  
July 2, 3, and 5—Annual Regatta Mississippi Valley Power Boat Association, Burlington.  
July 10—Black Island Race, New York Athletic Club, Travers Island, 15 statute miles.  
July 17—New York to Cornfield Light and Return—Colonial Yacht Club, New York City, 210 statute miles.  
July 17—Columbia Yacht Club, Regatta, Delaware River Yachtsmen's League.  
July 24—Keystone Yacht Club, Regatta, Delaware River Yacht Racing Association.  
July 31—Riverside Yacht Club Cruise, Chesapeake, Pa.  
Aug. 8, 10 and following days—At Cowes, England, Races for the British International Trophy.  
Aug. 10, 18—Cruise to Long Island Sound, Delaware River Yacht Racing Association.  
Aug. 11, 12, 15—Hydroplane Races for Championship of St. Lawrence River, Thousand Islands Yacht Club.  
Aug. 18—American Power-Boat Association Cruiser Championship, 75 to 100 miles over New York Athletic Club course, Long Island Sound.  
Aug. 21—New York to Poughkeepsie and Return, Colonial Yacht Club, New York City, 130 statute miles.  
Aug. 21—Wissinoming-Trouton, Regatta, Delaware River Yachtsmen's League.  
Sept. 4—New York Athletic Club Navigation Race, Travers Island, New York.  
Aug. 28—Wissinoming Yacht Club, Regatta, Delaware River Yachtsmen's League.  
Sept. 3, 4, 6—Detroit, Mich., Gold Cup Races for American Power-Boat Association Championship of America.  
Sept. 3, 4, 5, 6—Fisher Trophy Races for the Displacement Boat Championship of America Silver Trophy Races for the 750 cubic inch piston displacement championship of America.  
Sept. 4—Anchor Yacht Club, Freitag Trophy, Delaware River Yacht Racing Association.  
Sept. 5—Trials for the One-Mile Championship of America.  
Sept. 11—Farragut Sportsmen's Assn., Regatta, Delaware River Yachtsmen's League.  
Sept. 12—Open Races, Hudson River Yacht Club, New York City, all classes.  
Sept. 18—Camden Motor-Boat, Record Trophy, Delaware River Yacht Racing Association.  
Sept. 19—Oreos Race of the Tamaque Yacht Club, Brooklyn, New York.  
Sept. 25—Forrest Hill Boat Club, Cruise-Picnic, Delaware River Yacht Racing Association.  
Oct. 9—Fall Regatta of the Columbia Yacht Club, New York City, all classes.

## Great Possibilities in Rebuilt Motors

This figures about 13,300 hours of actual running, in which time a distance of approximately four times the circumference of the earth was covered. The upkeep of the Bruns Kimball engine since its installation in Ebenezer has been \$40.

Another boat, Evelyn, installed a Bruns Kimball rebuilt engine in 1915. This boat carries fishing parties from Wreck Lead, L. I., to Cholera Banks during the summer months. In the winter all kinds of freight is hauled. These boats are typical of the craft using Bruns Kimball rebuilt engines.

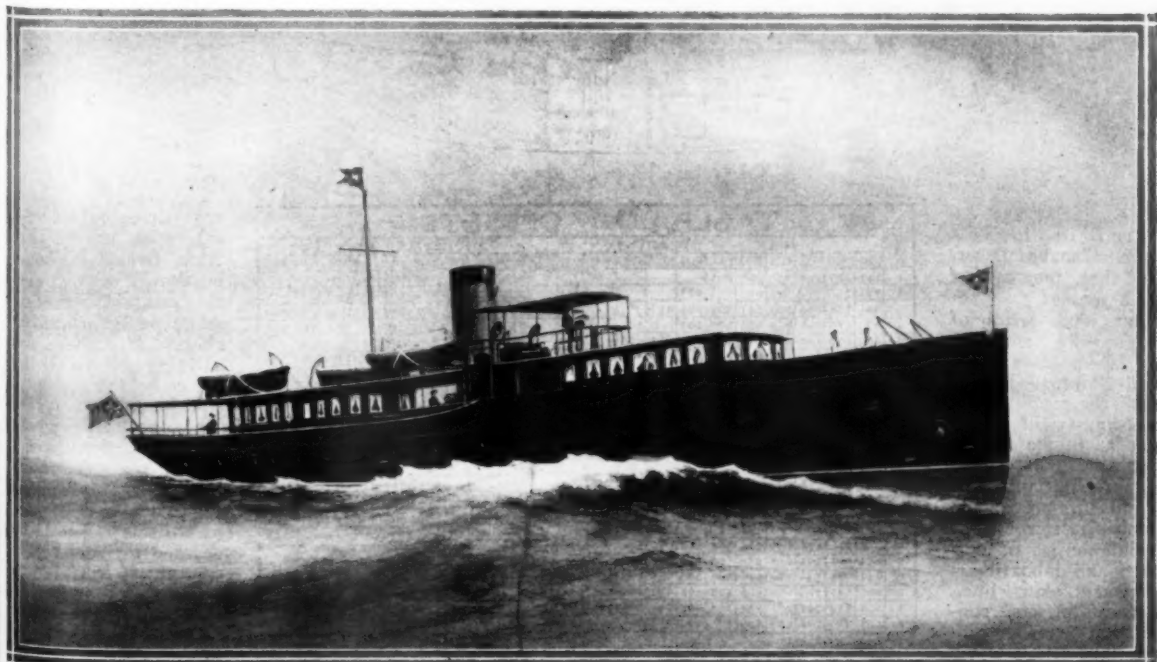


**F**OR many years Bruns Kimball & Company have been making old motors new, and it is claimed that their installations are scattered in every port. Numerous equipments of rebuilt motors have been in satisfactory service for many years. Several noteworthy instances of this efficient service can be given.

A great deal of consideration was given by the owners of the Ebenezer to the selection of a power plant in 1915. It was necessary to install a unit that would function properly under all kinds of varying conditions, both winter and summer.

Ebenezer is a 45x14½-foot fishing sloop operating daily the year round from the fishing grounds off Nantucket to the Fulton Market in New York.

A 6½x8 used marine motor rebuilt by Bruns Kimball was installed in Ebenezer. The owners claim that they have run 106,000 miles since the installation of the Bruns Kimball engine with an average speed of 8 m.p.h. and a running consumption of 3 gallons of gasoline per hour.



*Haida, a new motor yacht under construction for Max C. Fleischman of Cincinnati. She was designed by Gielow, her length is 144 feet and her power two 300 h.p. Winton Diesels*





# New Things for Motor Boatmen

Each month new parts, attachments, and fittings, interesting and invaluable to owners of large and small motor boats, are added to the devices already on the market. Announcements of these articles come to us in such numbers that in order to introduce all of them to our readers we have been obliged to omit descrip-

tions and publish only illustrations with short explanatory captions. In doing this, however, we urgently invite our readers to write us for complete information, as we shall take the greatest pleasure in providing it, together with the name and address of the manufacturers from whom the products may be obtained.



Shops and factories will appreciate the value of a portable extension reel to reach into dark corners and out of the way places



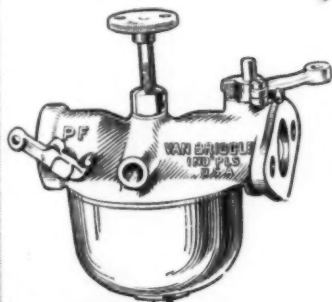
Pressure type kerosene stove which burns with an intensely hot blue flame



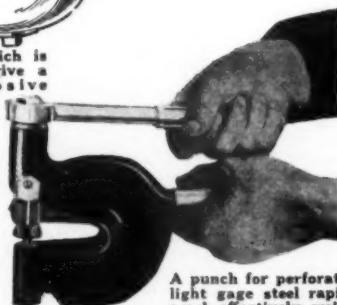
Protective garments made of durable, heavy material which all motor boatmen can use



Strainers which can be readily cleaned will be appreciated by those who have had trouble with sediment in their fuel



Carburetor which is designed to give a proper explosive mixture



A punch for perforating light gauge steel rapidly and effectively weighs only five pounds



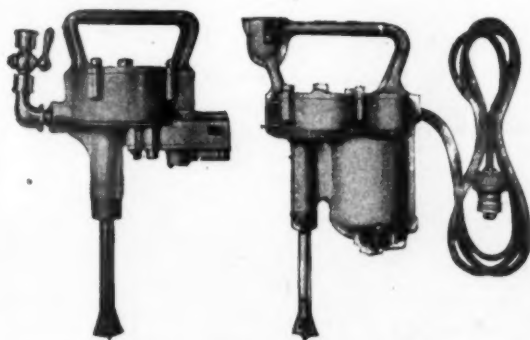
Distilled water container and filler for storage batteries



Gasoline or kerosene lantern which is storm-, rain-, wind- and bug-proof



This spark plug with a built-in gap in which it is possible to observe the spark at all times



Two types of power-driven valve grinders, one for air and one for electricity, which have large capacities



The fire extinguisher is an absolutely essential device. This one is double-acting and holds 1 1/4 quarts of fluid

Do not fail to write to the editor if you desire information concerning any of the above new things

# Yard and Shop

Notes of Interest to Both Owner and Manufacturer

## Bubbles from Beantown's Show

THE first person to greet us as we entered the Mechanics Building was Eddie Stone, of Springfield. He fell upon our shoulders and without the usual preamble of "How's Business" he started to tell us of a dream he had the night before.

It seems that he dreamed that Chester I. Campbell, the show manager, called him on the telephone some time during the wee small hours of the morning and inquired if he was satisfied with the Show to date. Eddie being not a little perturbed for being awakened at such an hour, in addition to several other matters which he had on his mind when he went to sleep, refused to discuss with Campbell the matter in question. But he did tell the manager that he'd like to make a date with him for the next morning when he'd tell him a few things. Whereupon Mr. Campbell invited Ed to be at his office at eleven o'clock the next morning. And so the dream goes.

At the appointed hour next day Eddie appeared at the office with his little piece all rehearsed in fine style. But it took quite an argument by Campbell to convince Mr. Stone that he made no appointment with him and all must have been a dream. However, Eddie tells the story and says that he told Campbell what he had intended all the same.

JUDGING from the box office receipts the Show must have been a success for we saw Frank Sexton, of Murray & Tregurtha, pay his fifty-five cents to see Walt Moreton's show as he called it. Frank had no exhibit, for he says the Bostonians wouldn't pay his price. However, we are inclined to take issue with him, for we believe anyone, even Bostonians, will pay real money for Murray & Tregurtha engines, for they know as well as anyone that they are worth every cent asked. However, we out-of-towners taught Sexton a new game; then he turned around and cleaned us all up—beginner's luck, they say.

OUR esteemed contemporary John Banninga entertained on Wednesday evening at the Copley Square. We were not invited but believe everyone enjoyed themselves. We judge that John felt relieved to think that his Show copies had arrived. You see, the railroad authorities would not believe that a trunk weighing several hundred pounds addressed to the Boston Motor Boat Show contained but one kind of contents, which, by the way, we understand it is illegal to ship now. When John said "magazines" they said, "Oh, no." Then they said let's see, and as the key could not be found, the trunk was held for several days until it was proven that it was full of magazines with green covers.

WE met Guy Vaughan the congenial G. M. of Van Blerck in the Biltmore on Sunday of Show week. We

asked him if he was going up to Boston. He replied that he had forgotten that the Show was on, but he'd be there. Yet he was several days late arriving, and we understand that absentmindedly he took a train from Pennsylvania Station and was half way to Miami before he realized that Boston was his destination. The nearest we got to Guy was the end of the telephone line, but we understand that the Show was on after he arrived.

WE observed Fred. Lawley and Bill Hand enthusiastically congratulating each other that Countess and Hoosier V had held the express cruiser championship since time immemorial. Then we heard something that sounded like Hoosier V being an enlarged Countess, and then that the reason for the former's success was in no way due to the fact that she had a V-bottom underbody; then we thought it was time for us to keep our distance.

BILL GIBB, of Frisbie, came down dressed up in true eastern style. But before he went out to dinner we saw him carefully withdraw from his several pockets all evidence which might be used against him even during leap-year.

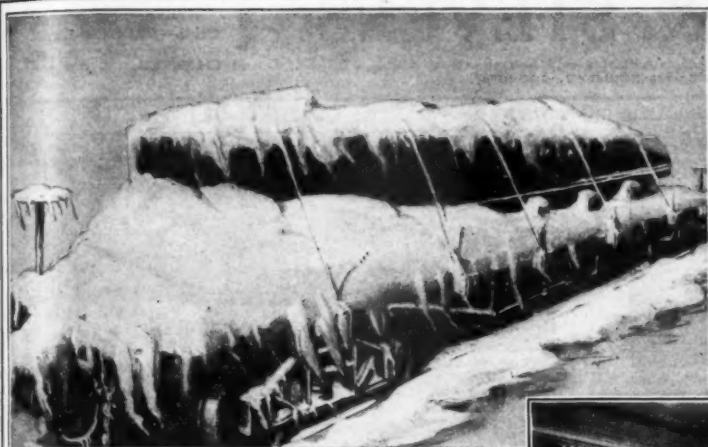
THE Show closed early on Tuesday evening to allow the exhibitors to take in the prize fight. The principal go

(Continued on page 35)



Free-for-all motor boat races are to be held at San Pedro, Cal., for the possession of the Roach Trophy shown above with its donor, Hal E. Roach. Among those who will have their speed boats in the trials are Dustin Farnum, Jos. Fellows, F. A. and F. E. Garbutt shown above and others. Some prominent eastern speed boats are expected to compete also





How the *Comanche* weathered the Big Blizzard and reached the New York Show spic and span —

HACKER BOAT COMPANY  
DETROIT, MICH.

February 26, 1920

Valentine & Company,  
New York.

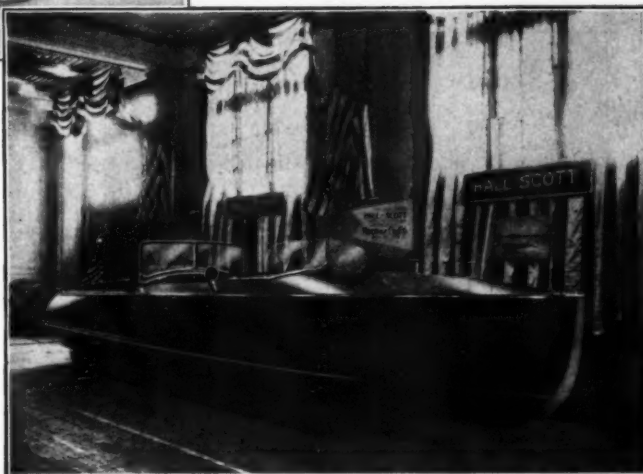
Gentlemen:

Like all others who made shipments to the Motor Boat Show this year, we had our troubles.

Because of the embargo the *Comanche* was held over night in the railroad yards at Detroit, and received a three inch coating of sleet and snow. This was left on top of the Valspar finish until the *Comanche* reached New York. It was then removed, the boat polished with a dry cloth, and I am glad to say that there was no damage whatever to the Valspar.

When the *Comanche* left Detroit I believed it would be necessary to refinish the deck before we could show the boat, but you can imagine my surprise and gratitude to Valspar when I discovered that this bother was obviated.

HACKER BOAT COMPANY.  
(Signed) H. F. Palmer.



© Rosenfeld, N. Y.

"A 3 inch coat of snow and ice"—  
but it didn't harm Valspar.

There is nothing we can add to such testimony. It simply proves the fact—*Valspar* is *weatherproof* and *waterproof*. That's why it is universally recognized as the world's best varnish for marine work of all kinds.

Our booklet, "How to Use Valspar on Boats," is full of useful varnish and paint tips. We will send it to you on request.

### VALENTINE & COMPANY

Largest Manufacturers of High-grade Varnishes in the world—Established 1832

New York Chicago Boston Toronto  
London Paris Amsterdam  
W. P. FULLER & CO. Pacific Coast



VALENTINE & COMPANY, 456 Fourth Avenue, N. Y.  
Special Offer

For your dealer's name and 15c in stamps, we will send you a 25c sample can of Valspar—enough to finish eight square feet of surface. Fill out Coupon.

Dealer's Name.....  
Your Name.....  
Your Address.....

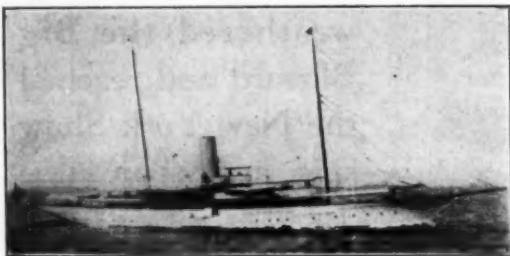
M. B. 5-20

Naval Architects  
and  
Yacht Brokers

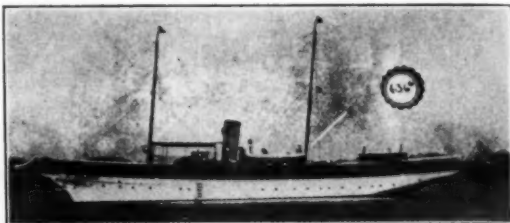
# COX & STEVENS

15 William St., New York  
Telephone—1375 Broad  
Cable—BROKERAGE

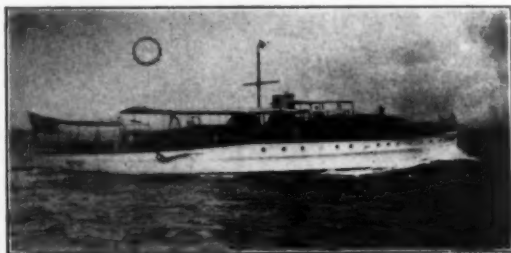
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



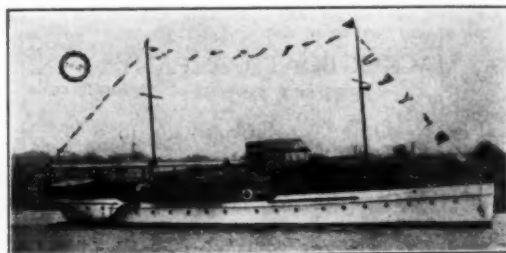
No. 71—For Sale—200 ft. seagoing steel steam yacht. Lloyd's highest rating. Cox & Stevens, 15 William Street, New York.



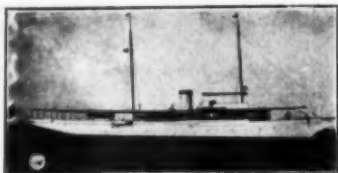
No. 636—For Sale—Modern 150 ft. steel steam yacht; most desirable of type and size available. Excellent accommodation; good speed. First class condition. Cox & Stevens, 15 William Street, New York City.



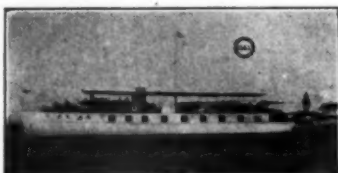
No. 2888—For Charter—Twin-screw Diesel power yacht; 100 x 18 x 6 ft. Speed up to 14 miles; two 150-175 H.P. Craig-Diesel motors. Extremely economical to operate on account low fuel cost and small consumption. Excellent accommodation. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York City.



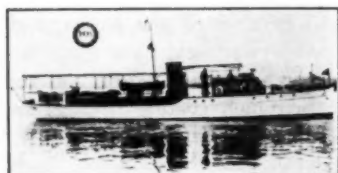
No. 2467—For Sale—Roomy twin-screw power yacht; 98 x 16 x 4 ft. Speed 13 to 15 miles; Standard motors. Large dining saloon, five staterooms, two bathrooms, all conveniences. Cox & Stevens, 15 William Street, New York City.



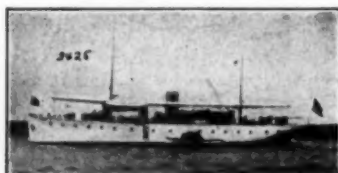
No. 1225—For Sale—Twin-screw cruising power yacht; 138 x 15.9 x 7.8 ft. Speed up to 18 miles, two 300 H.P. Speedway motors. Two saloons, three double staterooms, bath and two toilets, etc. Price low. Cox & Stevens, 15 William Street, New York City.



No. 1662—For Sale or Charter—Attractive 90 ft. twin-screw gasoline houseboat; speed 10-12 miles. Large saloon, four staterooms, two bathrooms; all conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



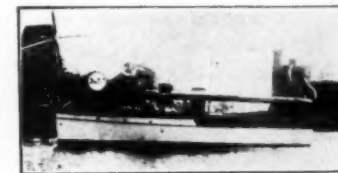
No. 3533—For Sale—Fast 72 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Price, etc., from Cox and Stevens, 15 William Street, New York.



No. 2425—For Sale or Charter—Twin-screw cruising power yacht; 90 x 16.6 ft. Speed up to 12 1/2 miles; two 6 cyl. 60/90 H.P. motors. Excellent accommodation. Cox & Stevens, 15 William Street, New York.



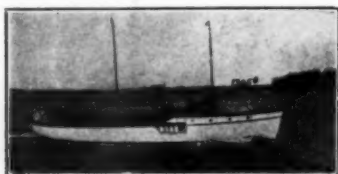
No. 2560—For Sale—Fast V-bottom, twin-screw power cruiser; 60 x 13 x 3 ft. Built 1917. Speed up to 18 miles; two 6 cyl. Sterling motors. Double stateroom forward; roomy saloon aft with separate galley; two toilet rooms (one with Sitz bath). Low price for quick sale. Cox & Stevens, 15 William Street, New York.



No. 3678—For Sale—Bridge deck cruiser, 58 x 13 x 4 ft. New 1916. Speed up to 12 miles; 50 H.P. Standard motor. Dining saloon containing two pullman berths, two double staterooms, two toilet rooms, galley, etc. Cox & Stevens, 15 William Street, New York.



No. 1997—For Sale—Cruising power yacht; 81 x 12 x 4 ft. Speed up to 13 miles; 6 cyl. 100-120 H.P. "20th Century" motor. Dining room, three staterooms, toilet room, etc. Cox & Stevens, 15 William Street, New York.



No. 1305—For Sale—Exceptionally fine bridge deck cruiser; 50 x 10.9 x 3.6 ft. Speed 11 miles; 25-35 H.P. Standard motor. Saloon, stateroom, large galley, toilet room, etc. Beautifully finished in African mahogany. In A-1 condition. Cox & Stevens, 15 William Street, New York.



No. 3689—For Sale—Fast hand V-bottom day cruiser, 45 x 10 x 3 ft. draft. Built 1918. Speed up to 20 miles; Sterling motor. In excellent condition. Cox & Stevens, 15 William St., New York City.

NAVAL ARCHITECT  
ENGINEER  
BROKER  
MARINE INSURANCE

# HENRY J. GIELOW

23 WEST 43RD STREET, NEW YORK

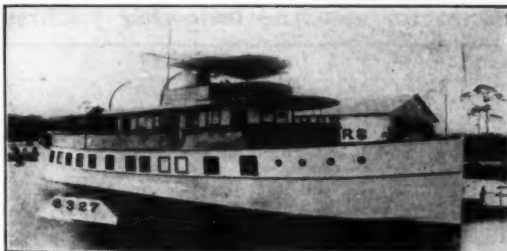
Tel.: Murray Hill 9134  
Cable Address:  
Crogle, New York  
A.B.C. Code

ALSO: CHICAGO, STEAMBOAT EXCHANGE, 350 NORTH CLARK STREET, CHICAGO

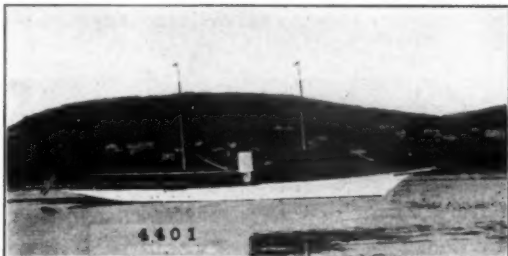
I have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in my office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. I am in a position to submit full information on any type of boat upon request.



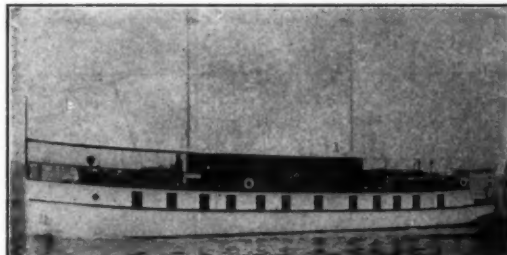
No. 3422—For Sale—Desirable 94 foot twin-screw steel power yacht. Deck dining room. Two double staterooms, bath and two toilets. Hot water heated. Standard engines. Speed 12 to 14 miles. Price reasonable. Henry J. Gielow, 23 West 43rd Street, New York City.



No. 6327—Sale or Charter—98 foot cruising houseboat. Built 1919. Owner's stateroom with adjoining bathroom and lounging room in deck house. Below five staterooms, three bathrooms and dining room. Henry J. Gielow, 23 West 43rd Street, New York City.



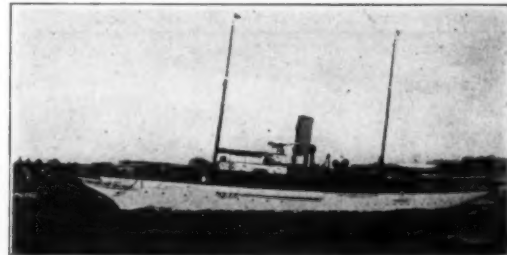
No. 4401—For Sale—137 ft. very attractive twin screw motor yacht. Speed 15 to 16 miles. Built by Lawley. Deck dining room and smoking room. Three double staterooms. Hot water heated. Price attractive. Henry J. Gielow, 23 West 43rd Street, New York City.



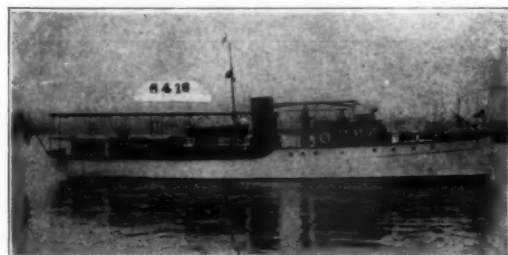
No. 5006—For Sale—Desirable twin screw 110 foot cruising houseboat. Speed 12 miles. Deck, dining room and lounging room. Seven staterooms, three bathrooms. Now in commission. Henry J. Gielow, 23 West 43rd Street, New York City.



No. 5403—For Charter—Desirable 51 foot houseboat. Standard motor. Large deck space. Two double and two single staterooms. Electric lights. Henry J. Gielow, 23 West 43rd Street, New York City.



No. 2138—For Sale—162 foot steel steam yacht. Dining room and music room on deck. Six staterooms, two bathrooms for owner and guests. Overhauled throughout, 1919; also boiler retubed. Henry J. Gielow, 23 West 43rd Street, New York City.



No. 6418—For Sale—72 foot twin screw bridge deck cruiser. Built 1917. Winton motors, 150 H.P. each. Deck dining room. Two double staterooms and bathroom. Electric and hot water heated. Henry J. Gielow, 23 West 43rd Street, New York City.



No. 6417—For Sale—45 foot Hand, V bottom express day cruiser. Built 1918. Speed 22 miles. Toilet room, cabin and galley. Large cockpit. Henry J. Gielow, 23 West 43rd Street, New York City.



# TAMS, LEMOINE & CRANE

## NAVAL ARCHITECTS AND YACHT BROKERS

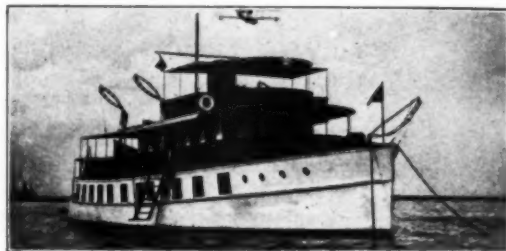
Telephone  
4510 John

52 Pine Street  
New York City

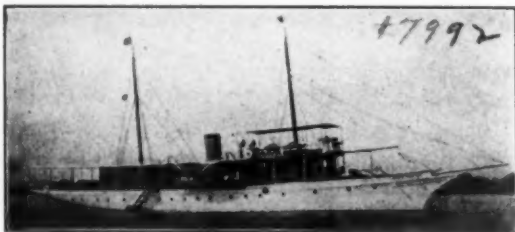
Offer for sale the following yachts, some of which are available for charter



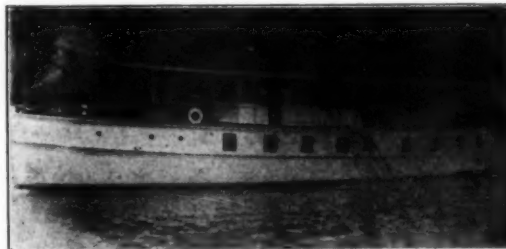
No. 8102—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles, electric light, hot water, heat and refrigerating plant.



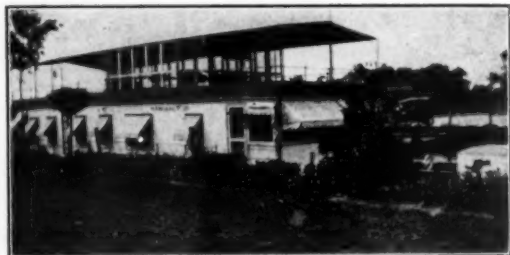
No. 1926—Sale—Charter 98—New houseboat; 6 staterooms, 3 bathrooms, dining saloon, sitting room; electric lighted and hot water heat.



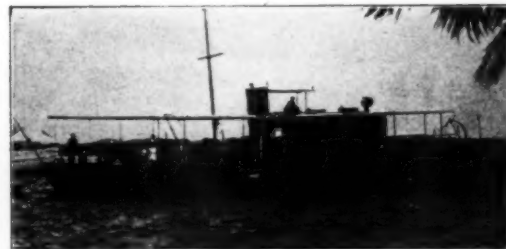
No. 7992—For Sale—Modern steel motor yacht, 115 ft. 7 in. x 17 ft. x 5 ft. 3 in. draft. 2—100 H.P. Standard motors. Speed 15 miles. Commodious owners' quarters.



No. 1927—Sale—Charter—Very desirable; twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.



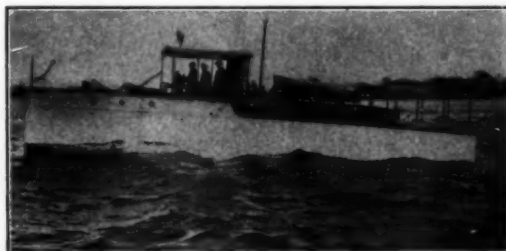
No. 1934—Sale Bargain, houseboat 61 ft. overall by 24 ft. beam, 4 staterooms, dining room, living room, conservatory, bath, etc., hot water heat, electric light and refrigerating plant. Most luxuriously fitted and furnished.



No. 7877—Sale—Desirable 90 ft. raised deck cruiser. Commodious accommodations. Very large deck space.



No. 1903—Sale or Charter—In Florida. Most commodious houseboat of her length available; 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft.



No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors; speed 21½ miles; all modern conveniences.

WILLIAM GARDNER  
F. M. HOYT

PHILIP LEVENTHAL  
W. T. HOLEY

## WILLIAM GARDNER & CO.

Naval Architects, Marine Engineers and Yacht Brokers

Telephone Call  
8638 Bowling Green

1 Broadway, New York

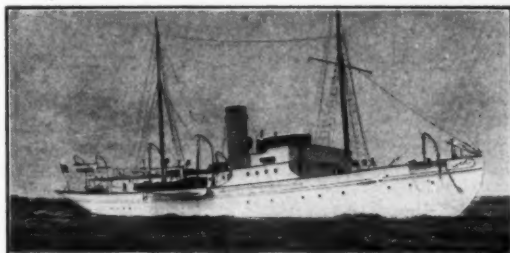
Cable Address  
Yachting, N. Y.

We have a complete list of Yachts of every description for sale and charter

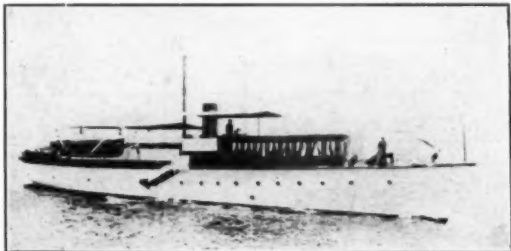
Plans, Photos and full particulars furnished on request



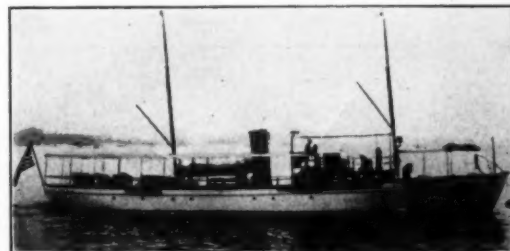
No. 1338—Power Yacht, flush deck, 135 x 15.8 x 7.6. Lawley built, two 250 H.P. Speedway motors, splendid accommodation.



No. 3282—English built Steam Yacht. Classed 100 A-1 Lloyds. Inspectable New York waters. 151 x 24.9 x 12.9. Magnificent sea boat. Adapted extensive cruising. Exceptionally well arranged accommodations.



No. 1840—Attractive motor yacht, 107 x 95 x 18.3, best construction, two six cylinder Standards.



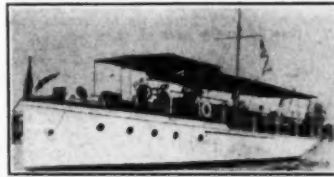
No. 1244—Sale or Charter—Twin screw power yacht, 96 x 14, two six cylinder Sterling motors installed 1916. Splendid accommodations.



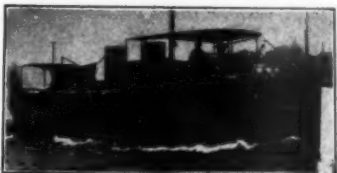
No. 1377—Attractive Twin Screw Cruiser, 70 x 13.6, two Twentieth Century motors, two double staterooms, saloon, etc.



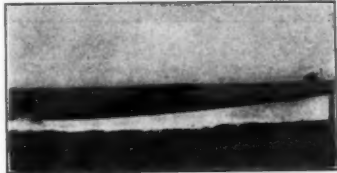
No. 1821—Twin Screw Power Yacht, 90 x 15.4, two six cylinder motors, good accommodation, etc.



No. 1880—Desirable cruiser, 60 x 12, six cylinder motor, speed 12-14 miles. Mahogany pilot house recently added.



No. 2023—Bridge deck cruiser, 68 x 11.3, eight cylinder Sterling, installed 1916. speed 15 miles.



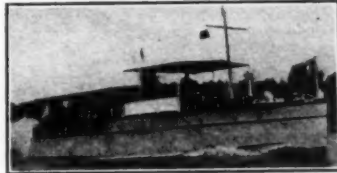
No. 2108—Fast Motor Boat, 40 x 5.6. 8 cylinder 175 H.P. Sterling engine, speed 22/25 miles. Mahogany finish.



No. 1960—Attractive cruiser, 65 x 12, four cylinder. Murray & Tregurtha motor. Cruising speed 12 miles.



No. 1837—Power boat, twin screw, 50 x 13, two Standard 25 H.P. motors, draft 3 ft. 6 in., ready for use.



No. 2312—Express Cruiser, 60 x 13, two six cylinder Sterlings, speed 18-20 miles, attractive figure.



No. 2500—Express cruiser, patrol type. 62.4 x 11.3; Herreshoff build, two 8 cylinder Sterling Motors, speed 25 miles.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating

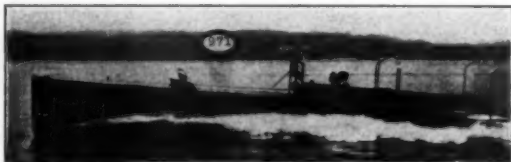
# EDWARD P. FARLEY CO.,

Railway Exchange Bldg., Chicago, Ill.  
Telephone Har. 1343

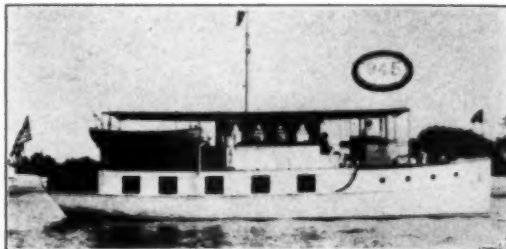
Naval Architects, Yacht Brokers, Surveying, Marine Insurance

We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter.

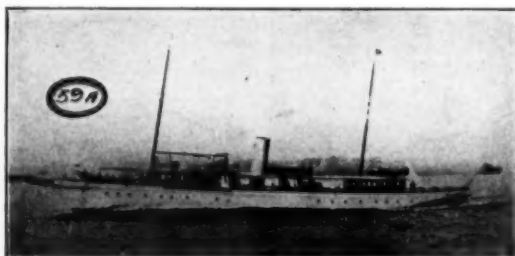
Plans, Photographs and full particulars furnished on request.



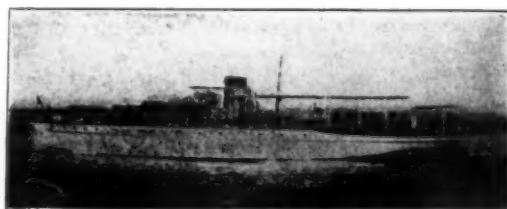
No. 971—For Sale—35 ft. Speedway runabout. Practically new, run less than 500 miles and in excellent condition. 150 H.P. Speedway motor, electric starter. Speed 27 miles. Mahogany planking and finish. Batten seam construction. Fully equipped with top, windshield, etc., and all extras as furnished by builders. A rare bargain.



No. 945—For Sale—Mathis 52 ft. houseboat. Launched in December, 1919. Is practically a new boat. Furnishings, etc., are of the best.



No. 59a—For Sale—170 ft. steel steam yacht. Six double staterooms, large dining saloon and social hall on deck. Triple expansion engine. Speed up to sixteen miles. Excellent condition. Has had very best of care.



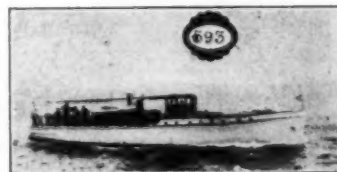
No. 428—For Sale—Offered by estate. Very able twin screw power yacht. 98 ft. x 16 ft. 6 in. x 4 ft. 6 in. draft. Four staterooms, bath room and two toilets. Low price.



No. 630—For Sale—115 ft. x 17 ft. x 5 ft. 3 in. twin screw, steel, gas yacht. Standard motors. Speed 15 miles. Comfortable large owner's quarters. Social hall and dining saloon on deck.



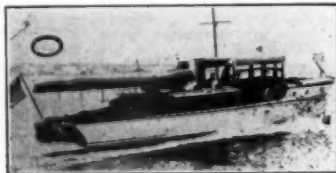
No. 401—For Sale or Charter—96 ft. twin screw cruiser. Speed 14 miles. Sterling motors. A very able yacht, built in best manner with roomy accommodations. Now in commission.



No. 593—For Sale—Twin screw cruiser. Built 1917. 72 ft. x 15 ft. x 4 ft. Sterling motors. Speed 15 miles. A well built boat and proven reliable. Large accommodations. Attractively furnished.



No. 413—For Sale—85 ft. twin screw steel gasoline yacht. Two double, one single staterooms, also bathroom. Speedway motors. An excellent seaboat and comfortable cruiser. E. P. Farley Co., Railway Exchange Bldg., Chicago, Ill.



No. 880—For Sale—56 ft. x 11 ft. 6 in. x 3 ft. twin screw express cruiser. Built 1916. Van Blerck motors. Attractively arranged and furnished, with large cockpit aft. Was not in Government service.



No. 910—For Sale—62 ft. twin screw express cruiser. Built 1919. Speedway motors. Two staterooms, bath, 2 toilets, dining salon. Enclosed bridge. Attractively furnished.



TELEPHONE  
969 VANDERBILT  
CABLE ADDRESS  
YACHTSAN, N. Y.

## HARRY W. SANFORD

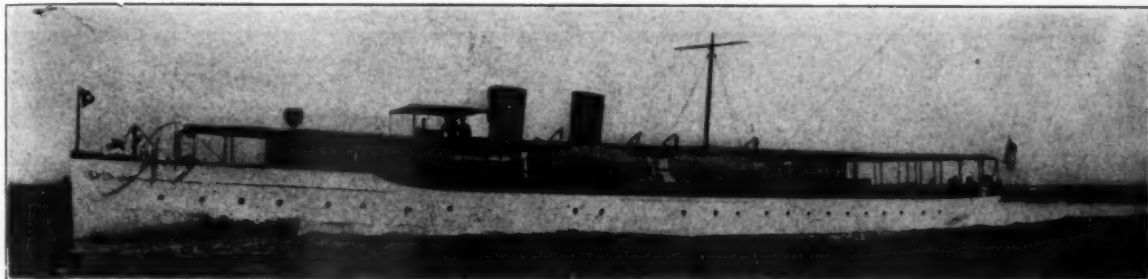
YACHT AND SHIP BROKER

501 FIFTH AVENUE AT 42nd STREET, NEW YORK

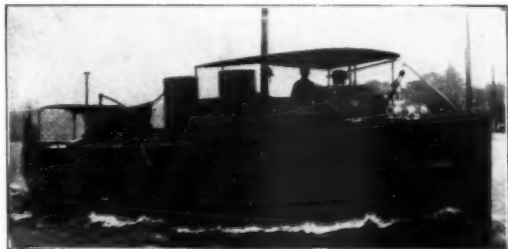
Desirable Yachts of all Types For Sale and Charter. Also Commercial Vessels.

Let Us Know Your Requirements.

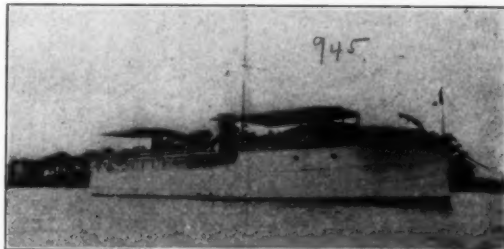
Yacht Appraiser,  
Marine Insurance



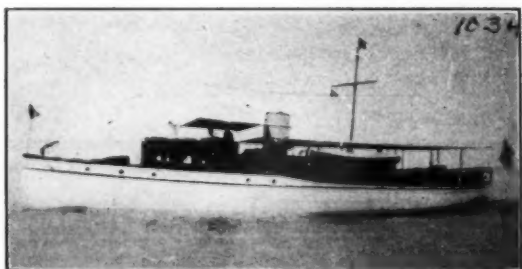
No. 1005—For Sale—165 ft. steel steam yacht, oil burner, 6 staterooms, 3 baths. Modern yacht, beautifully furnished and finished. Speed 20 miles.



No. 557—For Sale—An exceptionally attractive and seaworthy 68 ft. yacht. 3 staterooms, shower and hot water heating plant. Speed 14 miles. Motor equipped with self-starter.



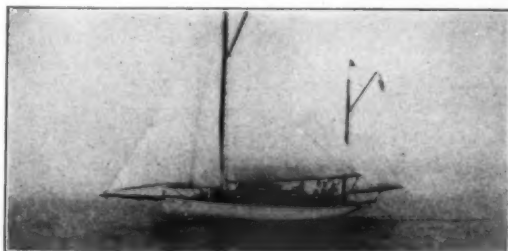
No. 945—For Sale—Twin-screw 60-foot express cruiser. Accommodations for seven persons. Built 1917. Speed 22 miles. Has had very good care. We have several others to offer from 40 feet to 80 feet in length.



No. 1034—For Sale—Twin-screw 80-foot power yacht. Accommodations for nine persons, bath, etc. Speed 14 miles. Must be seen to be appreciated.



No. 292—For Sale—Finest 50 footer afloat. 1 double stateroom and saloon. Sleeps 6 persons besides crew. New motor with self-starter. Excellent condition. Speed 14 miles.



No. 304—For Sale—Auxiliary yawl, 37 ft. by 10 ft. by 4 ft. Accommodations for six persons. Motor equipped with self-starter. Excellent condition.



No. 967—For Sale—36 ft. cruiser. 1 double stateroom and saloon. Built 1917. Speed 10 miles.

HENRY H. JENNINGS

HERMAN JAGLE

# H. H. JENNINGS COMPANY

## YACHT and SHIP BROKERS

Cable Address  
Yachtbroco, Newyork

TRIBUNE BUILDING,

154 Nassau St.

New York City

Surveying

Marine Insurance

Our 25 Years Experience and Our Knowledge of the Yachts We Offer Insure Satisfaction to Clients  
**SEND SIX CENTS FOR OUR ILLUSTRATED CATALOGUE**



No. 1926—Twin-screw power yacht, 60 ft. x 13 ft. x 3 ft. Double stateroom. Three berths in main saloon. Two toilets, bath, etc. Two 125 H.P. Sterling motors. Speed 17 miles.



No. 4322—Sale or charter. Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.



No. 1529—65 foot power yacht. Double stateroom, main saloon, dining saloon, bath, etc. Speed 12-14 miles.



No. 1564—68 foot power yacht. Two staterooms, main saloon, shower bath, steam heat, electric light, etc. Speed 15 miles.



No. 1111—Sale or Charter—90 foot twin-screw power yacht. Four staterooms, dining saloon, two baths, etc. Speed 12 miles.



2081—58 foot Cruiser. Two double staterooms. Main cabin has two Pullman berths. Two toilet rooms. 50-54 H.P. Standard motor. Speed up to 14 miles.

Telephone  
480 Whitehall

Cable Address  
Windward, N. Y.

Naval Architecture  
Marine Insurance  
Appraisals

# FRANK BOWNE JONES

YACHT AGENT AND SHIP BROKER

29 BROADWAY

NEW YORK

High class yachts of all types for sale and charter;  
also mercantile vessels of all classes.

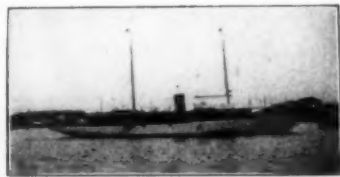
*Let us know your requirements*



No. 4098—Sea going steam yacht. Length 300 ft. One of finest yachts in the fleet. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.



No. 1212—Fastest of the large express yachts. Length 92 ft. Twin-screw. 2-300 H.P. engines. Lawley built. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.



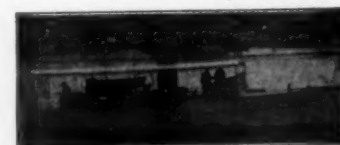
No. 2985—Gasoline yacht. Length 137 ft. Lawley built. Twin-screw. Speed 15-16 miles. Ready for use. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.



No. 6090—90 ft. gasoline yacht. Lawley built. Twin-screw. Good as new. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.



No. 4697—60 ft. gas cruiser. Best design and build. Speedway motor. Reasonable price. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.



No. 3731—52 ft. Speedway express cruiser. Built 1918. Little used. Speed up to 18 miles. FRANK BOWNE JONES, Yacht Agent, 29 Broadway, New York.

## THE MOTOR BOATING MARKET PLACE

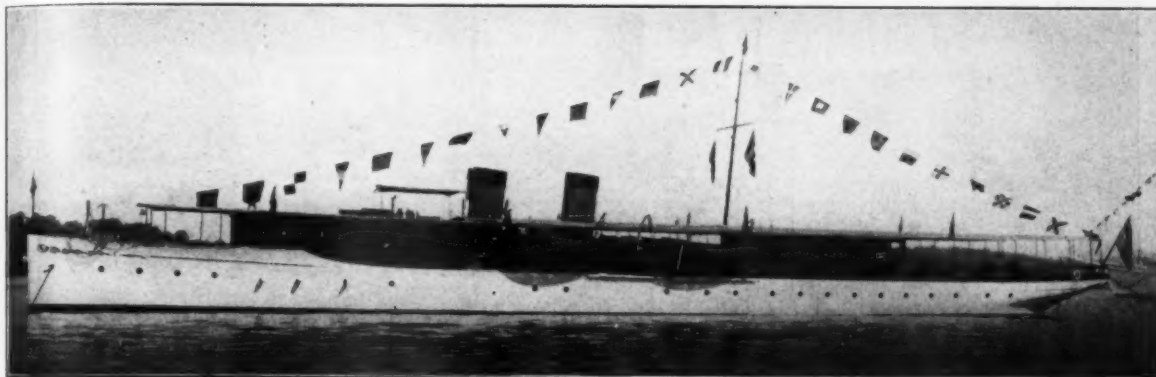
The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum \$1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide..... \$ 5  
Cut 1½ inches deep, 1½ columns wide..... \$10  
Cut 2¼ inches deep, three columns wide..... \$20

Terms: Cash with order.

### Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatingG.



No. 3047—For Sale—Particularly attractive, fast, twin screw, oil-burning steel steam yacht; 165 ft. overall, 18 ft. beam, 7 ft. draft. Speed up to nineteen miles per hour; two triple expansion engines; two Norman watertube oil-fired boilers. Built by Lawley in 1913 from our designs and under our supervision. Splendid accommodation includes dining saloon in forward deckhouse, music room in after deckhouse, all beautifully panelled in mahogany; below aft are two double and four single staterooms, three bathrooms, etc. Owner's stateroom, full width of vessel, attractively finished in white mahogany. This undoubtedly most desirable yacht of type available embodying large accommodation, exceptional speed, and excellent sea-worthy qualities. In excellent condition throughout having recently been thoroughly overhauled at considerable expense. Owner unable to use, will accept reasonable figure for prompt disposal. For plan and further particulars apply to Cox & Stevens, 15 William Street, New York, N. Y., or your own brokers

### "Lazy Lady" Island For Sale

Ideally situated in St. Albans Bay, Lake Champlain, just south of the Canadian line; a short trolley ride from St. Albans, Vermont, easily accessible by rail, 5 trains daily from N. Y.—3 from Boston.

Four acres of island beauty, offering every variety of landscape—sandy beaches—landlocked harbors and rocky promontories from which the Green mountains on the East and the Adirondacks to the Southwest stretch away in lofty grandeur.

Half a mile away is Hathaway Point, with a colony of cultured cottagers and the main lake with a hundred mile sweep of waters.

A delightful climate, with phenomenally dry atmosphere—no mosquitoes. Excellent fishing and hunting—golf and country club facilities—an unsurpassed location for a country home, hotel or cottage colony.

Will sell at a sacrifice.

**L. A. PRICE**

**ROTHENBERG & CO.**

34-42 West 14th St., New York City

Small craft fetched or delivered anywhere under sail or power. Examinations made. Honest reports given. Capt. Pearson, Great Kills, Staten Island.

For Sale—Passenger boat, 65 x 13 ft. Draft 4 ft. Double decker, fully equipped to carry 150 people. Speed about 9 miles. 2 engines. Main engine 60, auxiliary 20 H.P. No reasonable offer refused. Boat at foot of Lake Ontario. Apply for full information. C. H. Morrison, 14 Public Square, Watertown, New York.

#### Trimount

**Whistle Blower Outfits**  
Blower runs by friction contact with engine fly-wheel. Whistle of brass, nickel-plated.

Made in 3 sizes.

**TRIMOUNT ROTARY POWER CO.**  
20 Heath Street Boston, Mass.  
(Factory: 292 Whiting Ave., East Dedham, Mass.)

#### Trimount

**Rotary Hand Bilge Pumps**

All bronze composition. Suction lift 6 to 20 feet. A lifesaving convenience.

Made in 3 sizes.

Our floor space of about 18,000 square feet allows us to nicely display over two hundred (200) slightly used and rebuilt machines. If you are in the market for a rebuilt engine, we have some particular type that is exactly suitable for that very type of boat you have. Let us know the exact dimensions and type of your boat and we will be pleased to give you the benefit of our experience in selecting a power plant that is correct. **BRUNS KIMBALL & CO.**, 153-159 West 15th Street, New York City.

For Sale—3 cylinder, 2 cycle, 5¼ in. bore, 5¼ in. stroke, Barber Bros. gasoline engine, complete with shaft, 20 in. reversible propeller, in first class condition. Manufacturer's rating 36 H.P., 1,000 R.P.M. For further information write Box 24, c/o MoToR BoatingG.

For Sale—12 ft. yacht dinghy, mahogany trimmed, canvas cover. N-617 Mutual Life Bldg., Buffalo, N. Y.

**FOR SALE**—One 62 Ft. Motor Yacht. Standard Motor. Speed 10 Miles. \$7,000.00. Percy M. Child, 1110 14th St. N. W., Washington, D. C.

**Wanted**—1-1½ or 3 Kw. Direct Connected 110-volt Gasoline Electric Light Plant. Must be 4-cycle motor equal to No. 2 Carlisle & Finch Plant. Percy M. Child, 1110-14th St. N.W., Washington, D. C.

One 12 H.P. two cylinder two cycle Lockwood-Ash motor complete with force feed oiler, Kingston coil, Planhard carburetor, new pistons and rings. Allentown Experimental Works, Allentown, Pa.

Use "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

**CANADIANS**, Second-hand engine bargains. Send for list.

**GUARANTEE MOTOR COMPANY**

73 Bay Street, North Hamilton, Ont., Canada

Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types \$50 each and up. Special high tension 2 and 4 cylinder Magnets \$9.50 each. Electric and Gas Head Lamps—Coils—Carburetors—Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dept. B, West End, Pittsburgh, Pa.

**Bargain**—7 in. searchlight, 1200 c.p., Carlisle & Finch, type M make, new used less than a week, complete generator, rheostat, etc. First \$125.00 takes light outfit. John G. Matt, Box 615, McCall, Idaho.

For Sale—1—9 in. Carlisle & Finch pilot house control arc searchlight. Solid brass. Price, \$125.00. Percy M. Child, 1110-14th St. N.W., Washington, D. C.

For Sale—1-7-inch Deck Type Carlisle & Finch Arc Marine Search Lamp. Brass \$50.00. 1110 14th St. N.W., Washington, D. C., Percy M. Child.



### All Sizes Rebuilt

marine engines from one to 300 H.P. 4 cylinder 4 cycle Globe 10x14" 50" 3 blade propeller. \$3,900.00 a pair 11x13 Graig's \$4,000.00. 87 H.P. Standard 4 cylinder \$1,900.00. 8 cylinder 6x6 Speedway \$900.00. 100 H.P. Graig \$1,500.00. Automatic, Buffalo, Lathrop, Sterling, Miami, Palmers and others.

Send for complete list

**HAMILTON MARINE  
ENGINE EXCHANGE**

440-444 Fifty-second Street  
Brooklyn, N. Y.



## THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum \$1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide..... \$ 5  
Cut 1 1/4 inches deep, 1 1/4 columns wide..... \$10  
Cut 2 1/4 inches deep, three columns wide..... \$20

Terms: Cash with order.

### Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR Boating.



For Sale—Gas screw tug. Length 50 ft. Beam 11 ft. 6 in. Draft while running 6 ft. 6 in.; 125-150 H.P. Buffalo heavy duty, self starting motor, just thoroughly overhauled. 54 in. wheel, 45 in. pitch. Extra well built hull, well coppered, 2 in. planking, 3 in. timber. One 700 gallon gas tank and two 150 gallon tanks. Makes 12 to 15 miles per hour running light, and 5 to 6 miles an hour when towing a barge, carrying three hundred tons dead weight. The stack is an air tank, furnishing air for whistle and starter. The boat is licensed and insured for the water of the Chesapeake Bay and tributaries. Write today for price. Nansemond Brick Corporation, 435-36-37 Law Building, P. O. Box 924, Norfolk, Va.



No. 3374—For Sale—Heavily constructed, flush deck auxiliary schooner yacht, 132 ft. overall, about 100 ft. waterline, 25 ft. beam, draft about 14 ft., located Pacific Coast. Completed 1917. Particularly adapted for offshore cruising. Economical to operate; handled with small crew. Accommodation includes large dining and main saloons, nine staterooms and two bathrooms. Speed under power 7 1/2 knots; two 65 H.P. six cylinder air-starting engines driving twin screws. Electric lights. All conveniences. Bargain for quick sale; owner desires effect immediate disposal. Cox & Stevens, 15 William Street, New York.

**TWO cylinder 5 1/2 x 7**  
The heavy duty Sterling  
with reverse gear. Has  
just been overhauled, and  
is ready for immediate service. Price three hundred  
fifty (\$350) dollars.

E. J. STONE  
c/o Knox Motors Company  
Springfield, Mass.

FOR SALE—Van Blerck engine, 125 H.P., almost new, and just overhauled; looks like new and is as good as new; reverse gear attached, etc.; first offer, \$2,200. Elwin Brown, Tacoma, Wash.

For Sale—Fast 42 ft. motor boat, semi cruiser type; 6 cyl. Speedway engine, special clutch, steer inside or outside, varnished decks and cock pit; brass and mahogany trimmed, 2 bunks, now being painted, in commission at once if desired; will take \$3000.00; cannot be duplicated for \$7500.00; photograph on request. Machinery just overhauled at an expense of \$1250. O. H. Sherbrook, Blandford St., Boston, Mass.

**MALE HELP WANTED**—We want several more first class boat builders and joiners who enjoy nice work on race boats—luxurious cruisers and snappy runabouts. We want men for steady work the year around on eight hour day. Increased operations will soon make openings for 2 leader men also. Albany Boat Corporation, Watervliet, N. Y.

**FOR SALE**—Solid mahogany 35 foot runabout. Crouch V-bottom displacement boat, varnished, copper fastened, copper riveted, bronze fittings, full electrical equipment, de luxe upholstery. Four years champion displacement boat. Owner building new boat, this is offered at one-quarter cost of present replacement. Sterling engine. Canadian Beaver Co., 133 Lake St., Toronto, Canada.

**FOR SALE**—Dory launch. Seaworthy, fast. Located Essex, New York, on Lake Champlain. 22' length, 6' beam, 1' draft. Buffalo engine. 7 H.P. Cockpit 12 1/2 x 5. Two side seats, one cross seat. Full length hood. Hull engine fillings first class condition. P. O. Box 214, Carlisle, Pa.

If your problem is selling standardized boats or internal combustion motors, I can solve it for you. Twenty years' business experience—selling, purchasing and advertising, finance and executive work. Have reached limit of opportunity with present connection and anxious to join larger company. Refer to Editor of MoToR Boating or others whose names will be given on request. Address MoToR Boating, Box 4.

One cyl. Two cycle  
2 H.P. Bridgeport .....\$35.  
3 H.P. Truscott ..... 35.  
4 H.P. Detroit ..... 40.  
6 H.P. Termaat-Monahan. 55.  
6 H.P. Gray and wheel... 70.  
7 H.P. Fulton and wheel... 95.  
8 H.P. Fox and wheel... 85.  
Two cyl. Two cycle  
6 H.P. Gray and gear...\$75.  
7 1/2 H.P. Fairbanks-Morse and gear.....125.  
8 H.P. Ferro ..... 95.  
10 H.P. Wonder ..... 95.  
12 H.P. Gray and gear...165.

Two cyl. Two cycle  
12 H.P. Detroit .....\$85.  
8 H.P. Cady and reversible wheel..... 85.  
14 H.F. Cushman .....110.  
18 H.P. Fairbanks-Morse three cyl.....145.  
30 H.P. Fairbanks-Morse four cyl. 4 1/2 x 4 1/2 .....225.  
Four cycle engines  
2 H.P. Dunn one cyl...\$38.  
4 H.P. Dunn two cyl... 55.  
7 1/2 H.P. Buffalo two cyl. heavy duty.....135.

Four cycle engines  
8 H.P. Dunn two cyl...\$45.  
8 H.P. Clark one cyl. heavy duty with wheel .....135.  
12 H.P. Doman, 4x4, three cyl.....165.  
15 H.P. Camp bell 5 1/2 x 6 1/2 with gear and wheel .....285.  
5 x7 Automatic 4 cyl...395.  
6 x7 Doman "new" 4 cyl.695.  
6 x8 Borg & Beck 4 cyl. 465.  
7 1/4 x9 Minneapolis 4 cyl...1075.

Badger Motor Company, Milwaukee, Wis.

Advertising Index will be found on page 130

### BARGAINS

### BARGAINS

#### EAGLE TWO CYCLE ENGINES

We purpose to close out at greatly reduced prices our entire stock of "Eagle" two cycle engines, as we intend to discontinue the manufacture of this type of engine in the future. Write at once for information to the

**TORRINGTON COMPANY  
STANDARD PLANT**  
Torrington, Conn.

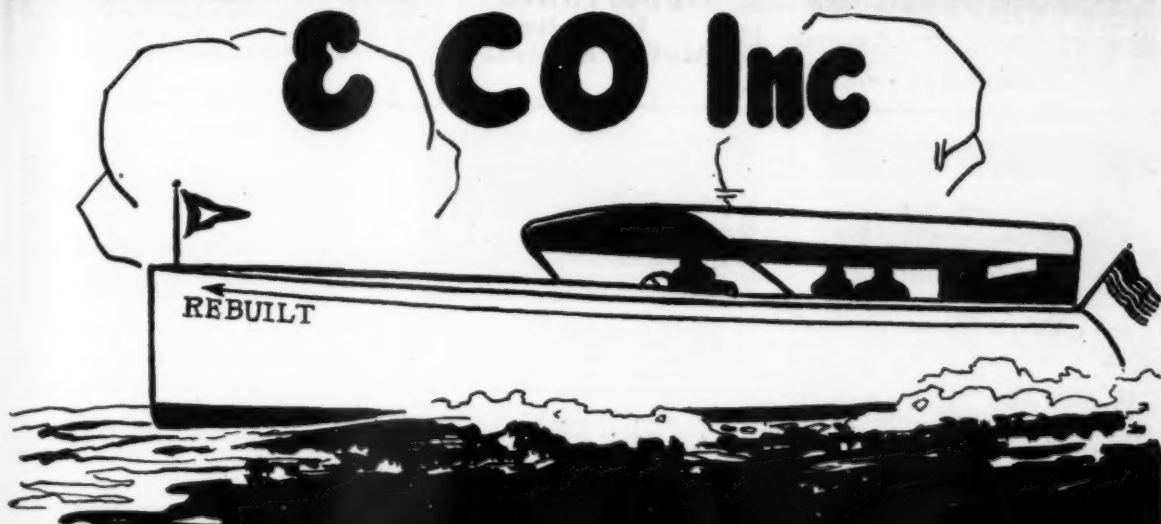
**FOR SALE**—One 1 1/4" Rebuilt Stromberg Carburetor for \$15.00. One 2 1/4" Rebuilt Schebler Carburetor for \$22.50. One 26 x 26 Right Hand Bronze Propeller 1-11/16 Tapered Bore for \$25.00. All F. O. B. Philadelphia. Box 12, MoToR Boating.

**FOR SALE**—New 31 ft. Motor Boat. Frisbie 20-30 H.P. Motor, 4 cylinders. Apply Russian-American Line, Inc., 42 Broadway, New York, N. Y.

For Charter—By month or season, 50 foot bridge deck cruiser. Stateroom and saloon sleep six, shower and two toilets. Completely found and just placed in commission. Owner cannot use. Charter at \$150 a month without crew, or \$250 a month with engineer. MoToR Boating, Box 34.

Everything Electrical for MOTORBOATS, automobiles, tractors, motorcycle. Expert repairing at the lowest possible cost. Why pay exorbitant prices elsewhere. 24 hours service. Bosch magnetos, \$15.00 up; generator-starters, \$20.00 up; coils \$2.00 up; New Bosch, Elsmann, Spindorf, Berling magnetos, 30% off list price. Motorboat repair shops special price. Onody Auto Electric Works, 334-336-338 Oak Street, Buffalo, N. Y.

# BRUNS KIMBALL & CO Inc



## REBUILT MARINE MOTORS

All sizes and types. Many with self starters.

Engines for both pleasure and commercial boats.

Rebuilt by our marine motor experts, with old faults corrected, worn parts replaced.

Dependable engines in really serviceable condition, at prices that will interest you.

To mechanics and others who can do their own overhauling we sell many engines just as they reach us, at greatly reduced prices.

If you are in the market for a new or rebuilt engine, we have right in stock an engine exactly suited to your needs. Tell us the dimensions and type of your boat and we shall be pleased to give you the benefit of our experience in selecting the correct power plant.

Our floor space of about 18,000 square feet allows us to display about two hundred slightly used and rebuilt marine engines, together with our regular lines of new engines. Come in and inspect this stock—it is a perpetual marine motor exhibition well worth seeing.

*Write today for printed list of rebuilt engines*

### BRUNS, KIMBALL & CO., INC.

153-155-157-159 West Fifteenth Street, New York City

Branch Show Room

Bourse Building

Philadelphia, Pa.

## THE MOTOR BOATING MARKET PLACE

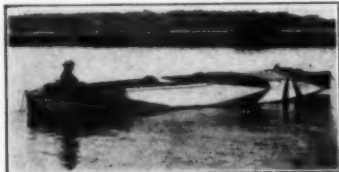
The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum \$1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide.....	\$ 5
Cut 1½ inches deep, 1½ columns wide.....	\$10
Cut 2¼ inches deep, three columns wide.....	\$20

Terms: Cash with order.

### Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.



25 ft. hand designed 5 ft. beam Cedar oak natural crook Hackmatack, all copper and bronze. Demountable Mahogany trim, 30 H.P., five propellers. Speed 15-20, according to propeller. Silent. Vibrationless, absolutely dependable. High class every respect. Cannot be duplicated for \$1500. \$750 cash gets it. First well informed investigator will buy on sight. Present color gray. Write Fleming, box 644, Harrison, N. Y.

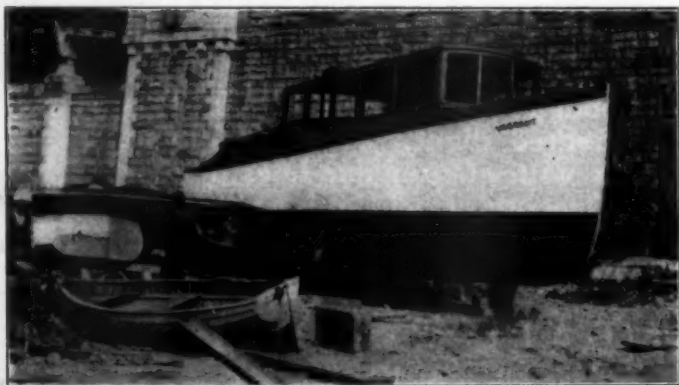
Solid Cork Life Preservers from U. S. Navy. Solid Cork Life Jackets, \$1.00 each. Solid Cork Life Preservers, 75c. each. Solid Cork Children Life Preservers, 60c. each. B. J. Green, 40 Richards St., Brooklyn, N. Y.

For Sale at Low Figure—Very able steam yacht; 75 x 13.6 x 6 ft. Speed 10 knots; Compound engine. Excellently adapted for carrying passengers or for work boat. Heavily built. Further particulars from Cox & Stevens, 15 William Street, New York. Telephone Broad 1375.

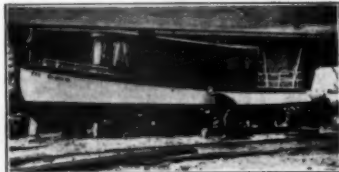
For Sale—12 horsepower, two cylinder Gray motor, complete with shafting and clutch; also two propellers and coil box. In first class condition. Wm. D. Perreault, 609 Main St., Laconia, N. H.

Build your own "Hydros"! Special—"Jazz Baby" 14 Ft.—"Tad Pole" 15 Ft.—Minnow 16 Ft.—"Jazz" 19 Ft. now ready! In preparation, "Pep" 17 Ft.; "Hi-Ball" 22 Ft. Construction Blue-prints 50c. Three different, \$1.00. Address "Engineer," 768 Barrett Ave., Louisville, Ky.

FOR SALE, DELIVERED IN COMMISSION JUNE FIRST. A MOST SATISFACTORY ALL AROUND CRUISER. (68 FT., 11 FT. 3 IN., 4 FT. 2 IN.) SOUND, SEAWORTHY, FAST, COMFORTABLE. SPEED 14-15 KNOTS. HEATED BY STEAM. RUNNING WATER THROUGHOUT BOT. SHOWER BATH. ELECTRIC LIGHTED THROUGHOUT BY NEW DELCO PLANT. OWNERS STATE ROOM WITH WIDE BED. FORWARD STATEROOM WITH TOILET. LARGE CREW'S QUARTERS WITH TOILET AND LAVATORY. UNUSUALLY LARGE OUTFIT FOR CRUISING. AMPLE SUPPLY OF EXTRAS. BOAT AND ENGINE NOW BEING THOROUGHLY OVER HAUED BY WOODR AT HIS YARDS AT CITY ISLAND, NEW YORK. PRICE FOURTEEN THOUSAND DOLLARS. NO OFFERS FOR LESS CONSIDERED. P. O. BOX 214, CARLISLE, PA.



For Sale—New cruiser, latest design, ready to launch. 46 x 12 x 3½. Built by expert mechanics under direct supervision of late owner. Best material and construction. White oak frame, 1½ inch Port Oxford Cedar planking. Mahogany cabin and super-structure, bronze and copper fastenings. Practically all necessary equipment, including electric starter, lighting, etc. New 37 H.P. Standard engine, built for boat ready for installation. Shaft in place. Would cost \$8,500.00 to build hull today. Must sell at sacrifice to close estate. Estate of Stephen H. Vail. Phone Cortlandt 6012. 200 Broadway, New York.



For Sale—30 ft., 15 H.P., 10 miles, full equipment; \$650 cash. Hines, Bentley Yacht Club, Tottenville, Staten Island, N. Y.

For Sale—Motor Boating Vols. LVIII inclusive bound in green canvas red and gold leather title label. Binding includes all ads and covers. Books having been in private library only are in A1 condition. L. L. Lorillard, Pomfret Centre, Conn.

For Sale—Fully equipped for 75 passengers, 64 x 12 ft. flush deck boat, power plant, 4 cylinder 4 cycle, 6 x 7 Unit Plant Buffalo motor. 25 x 6 ft. half glass cabin boat fully equipped, motor 2 cylinder 16 H.P. 2 cycle. 25 x 8 ft. open boat with portable top power plant 2 cylinder 2 cycle Rochester, fully equipped. 20 ft. x 4 ft. 6 in. open boat equipped with 2 cylinder 6 H.P. engine. Many others. Jesiek Boat Co., Grand Rapids, Mich.

For Sale—46 ft. x 12 ft. beam ferry boat, just the boat for picnic parties. Flush deck, 2 in. oak planked. Powered with 40 H.P. heavy duty Buffalo, fully equipped to carry 75 people. Just the boat for constant service, \$2500. Jesiek Bros., Holland, Mich.



No. 1666—For Sale—On Lake Winnepesaukee. Well constructed 30 ft. power cruiser. Cabin and cockpit finished in mahogany. Sleeps 4. Separate galley. In A-1 condition throughout. Suitable for salt water use. Five years old. Apply John G. Alden, 148 State St., Boston, Mass.

For Sale—Motor Yacht "Avenger".—Built 1918. 74 ft. x 15 ft. x 4 ft. 6 in. Extra heavy construction. Flush deck type. Twin-screw. Two 70 H.P. "Sterling" H. D. motors. Fuel capacity 1250 gals. "Delco" 110 volt generator. Speed 15 knots. For immediate sale will sacrifice. Apply to owner, Philip Wunderle, 118-132 Pegg Street, Philadelphia.

House Boat For Sale—Dimensions 42 ft. x 21 ft. over all. Five rooms and bath. Excellent condition. Price \$2,200. Leupp, 467 City Island Ave., New York City.

New up-to-the-minute mahogany express cruiser, 26 x 7. The best features of the high speed runabout, cruising quarters for 4, exceptional style, quality, convenience, seaworthiness. Hull only or complete outfit with speeds up to 30 miles per hour guaranteed. Price reasonable. Bronx Boat Works, foot Willow Ave., near E. 132nd St., New York City.

For Sale—Motor yacht "Gretchen", 38 ft. by 9 ft., 3 in., by 3 ft. draft. Unusually heavily constructed. Wonderful sea boat. Mahogany and white enamel interior, luxuriously furnished. Electric lights throughout. Ample sleeping accommodations for five. Practically new Scripps four cylinder enclosed self-starting engine. Speed ten miles per hour. New gas and water tanks. New Davis Dink and complete fittings. Those who are looking for a bargain but not a cheap boat. Address MoToR BoatinG, Box 33.

For Sale—Runabout, hand V-bottom, 21 ft. x 5 ft. 6 in. 18 H.P. Kermath motor. In excellent condition. best construction. Write to F. A. Hasse, 875 E. 179th St., New York City.

For Sale—36 x 9 bridge deck cruiser, built 1919. Electric starter and lights, one man control, toilet and galley. Sleeps six. Cost \$3600.00, sell for \$1800.00. Now near Washington, D. C. Wm. B. Staley, 106 N. Charles St., Baltimore, Md.

Wanted—Back copies of "MoToR BoatinG" for years, 1917, 1918, 1919. Bound or unbound. State price, condition and whether complete. Gibbs Gas Engine Co., Jacksonville, Fla.

Save money by getting our list of over 100 marine, auto and stationary engines from 1½ to 200 H.P. 1¼" new Kingston carburetors \$5.00 each; accessories of every description. Jesiek Boat Co., Grand Rapids, Mich.

Wanted—Waterman 2 cylinder canoe motor. Sterling Kid or other small 4 cycle engine. Dayton Murphy, Wellington, Ont.

A bargain in a 28 ft. refined V-bottom motor boat. In A-1 condition. All mahogany trim. Also a 33 ft. semi-speed boat for sale. All information sent on request. Motors and sail boats of all descriptions for sale and to let. Frank M. Weeks, River Ave., Patchogue, L. I.

First class mechanic and reconstructor of gasoline motors, A-1 in every respect. Would like to accept responsible position on or about June 1st. Thoroughly acquainted with electric installations and the repair of any part, mechanical or electrical. At present employed as maintenance engineer, having charge of local ferry, dry dock and machine shop. Familiar with office work and able to carry correspondence in English and Spanish. Address: J. W. W., Box 1271, San Juan, P. R.



## NAVAL ARCHITECTS & YACHT BROKERS

**Thomas D. Bowes, M. E.**  
NAVAL ARCHITECT AND ENGINEER

Offices:  
Lafayette Bldg., Chestnut and Fifth Sts.  
PHILADELPHIA, PA.

## COX & STEVENS

Engineers and Naval Architects  
Yacht Brokers

15 WILLIAM STREET, NEW YORK CITY  
TELEPHONE 1375 BROAD

## FREDERICK K. LORD

NAVAL ARCHITECT

120 BROADWAY NEW YORK

## CHARLES D. MOWER

Designer of  
SENSIBLE CRUISERS  
POWER—SAIL—AUXILIARY

Twenty-five years' practical experience  
347 Madison Avenue New York City

**MONTREAL**  
286 St. James St.  
Telephone Main 3352

**NEW YORK**  
2 Stone St.  
Telephone  
Bowling Green 6077

## N. E. McCLELLAND & CO., Ltd.

NAVAL ARCHITECTS  
YACHT BROKERS

## FREDERICK S. NOCK

Naval Architect and Yacht Builder

Marine Railway, Storage, Repairs  
East Greenwich Rhode Island

## HARRY W. SANFORD

YACHT BROKER

501 FIFTH AVE., at 42nd St., N. Y.

Desirable yachts of all types for sale and charter  
Telephone 989 Vanderbilt

## STRONG & BEEKMAN

Yacht and Ship Brokers  
29 Broadway New York

Yachts—all types, Sale or Charter; Commercial Vessels, Steamers, Sail and Auxiliaries; Plans, Specifications, New Construction.  
Tel. Whitehall 537  
Cable Address "Strobick-New York"

## Yard and Shop

(Continued from page 42)

was between Champion Mike O'Dowd and Joe Eagan, of Boston. It was a knock-out in the fifth round. Boston followers claimed Joe was yellow and "lay down," but we wouldn't care to lay down the way he did.

MOTOR BOATING is indebted to Captain Dean, of Norfolk, for decorating its booth. However, the Captain promised the decorations would be of his childhood recollections, as he is a native of Boston, but if we are any judge they were several generations later.

DEAR old smiling Wilbur Young, of the Columbian Bronze, was the life of the whole show. The only dull minutes of the show were when Wilbur was not in attendance. We heard his name paged many times. He seemed to be famous for his ability to place the horses.

AN interesting discussion took place in the lobby of the Copley Plaza between Clem Amory, of Consolidated, and Loring Swasey, of Herreshoff, entitled, "What You Lost at Miami I Got." Loring seemed very blue as to the future of yachting, but when we suggested the name of someone who might want a new boat, he pricked up his ears and said, "We can take care of him for 1921 or 1922 delivery." And so it goes—those who are sold out for the next two years to come are blue as to the future of boating. No cause for alarm, we say.

BILL Morehead, of Great Lakes, was greatly missed. We understand he is still at Palm Beach. Perhaps he is working on a certain kind of standardization.

THE only yachtsman that we recognized at the Show was Captain Hopkins, of Valeda. New York has its Jacksons, Williams, Duryees, Hadleys and many others—but Captain Hopkins, of Boston, is in a class by himself.

ONE of the prettiest exhibits was Charlie O'Hare, head of the new Marine Department of the Sinclair Oil Company. Notwithstanding the nice gray spats so prominent in Charlie's make-up, he's going to be one of the "Regular fellers" in the game hereafter, if the many friends he made and his willingness to be nice at Boston are any criterion. We'll help you decorate your booth at the next show, Charles, so don't be worried.

WHILE we admit the Malone Boys are hot stuff when it comes to selling marine supplies, still one matchbox for a whole crowd wouldn't set the world on fire.

## Bissell Varnishes

As successors to the David B. Crockett Company, the old established manufacturers of the world-famed Crockett's spar varnish, the Bissell Varnish Company is following out the traditions of its predecessor. Its entire staff of executive and manufacturing heads have been intimately associated with one or another of the various varnish manufacturing processes for many years.

The product, too, is on a higher plane of quality, if that is possible, than ever before. Modern factory methods have been introduced and the volume of business has grown tremendously.

(Continued on page 56)

## Jordan Bros. Lumber Co.

Manufacturers

White Cedar Boat Boards  
and Cedar Products

Norfolk, - - - Virginia



110-Ft. Yacht "CONSUELO"

Sixteen Years  
Designing  
Experience  
Specialty  
Sailing Yachts

J. MURRAY WATTS, N. A.

136 South Fourth St. Philadelphia  
Phone: Lombard 2072

AVOID disaster by using a DIRIGO compass on that boat. All materials first class. No rubber seals to rot. A very hard pivot and high-grade jewel. Navy degree circle on dial. Brass and mahogany binnacle. Also new course finder and bearings instrument. Send for descriptive catalog.



EUGENE M. SHERMAN  
Box 8 Bellevue, Wash.

## CANOEES

Outboard Motor Boats,  
Rowboats and Dinks

BADGER MOTOR BOAT CO., Inc.

Address, Lake Ave., Cor. 4th St., Racine, Wis.



Anderson Engine Co., 4032 N. Rockwell St., Chicago.  
New York Office, N. W. Cor. Broome & Lafayette Sts.

## CAPE COD 20-FT. DORY LAUNCH

The Safest little family boat built. Motor housed in.

Also  
17' Sail Dory  
16' Shallow Draft  
17' Life Saving Dory

14' Outboard Motor  
16' Row Boat  
12' Row Boat

CAPE COD SHIPBUILDING CORPORATION  
Builders of craft to 150' length, or 16' draft.  
Winter Storage

367 Main St., Weymouth, Mass.  
New York Show Rooms, 412 Eighth Avenue, New York City

## "Reliance" Steering Gears

AND

30 Styles

Deck Controls

The Proper Wheel  
for every type  
of boat



Write for Literature  
W. S. HALL CO.  
Rochester, N. Y.

## IMPROVED THERMEX SILENCER

Increases Revolutions, No Back Pressure!  
Cannot clog, nor collect salt; water cannot flow back to cylinder. No heating, no odor. Used free or under water—adjustable discharge. Lightest, cheapest to install. Free booklet shows why. Send for it today.

CENTRAL MFG. CO.  
155 Liverpool St. East Boston, Mass.



REVERSE  
GEARS

RADIATE SATISFACTION  
Five Models Work for Five  
GIES GEAR COMPANY  
41 West Street East, Cambridge, Mass.

## Yard and Shop

(Continued from page 55)

### Reservists to Get Cruise

THE Navy announces an interesting and attractive summer practice cruise in which not only midshipmen of the Naval Academy but naval reservists of the enlisted personnel in civil life will participate. Secretary Daniels has authorized the taking along of 1,600 reservists when the practice fleet sails from Philadelphia on June 5. The U. S. S. Connecticut will be the flagship of the fleet, which will include the Kansas, Minnesota, New Hampshire, South Carolina and Michigan.

Those who volunteer will be required to report on May 10 to the commandant of the naval district in which they live. They will be sent to Philadelphia and will embark about June 1. They will be released again from active duty on or before September 10, but any who wish to remain in the Navy on active service will be permitted to do so.

It is announced that applications from reservists will be filed in the order of their receipt. Applications that arrive after the crews for the ships have been made up will have to be declined.

### Masten Company Takes Larger Quarters

G. H. Masten Company, Inc., announce the consolidation of their retail business in their own building at 38 East Ninth St., one-half block west of Wanamaker's, in New York City. Their former display rooms in the Hudson Terminal Concourse are to be discontinued. Large quarters in their uptown location will make possible a more extensive display of their many useful motor boating aids. Among these can be particularly mentioned their Liberty buoyant swimming belt for adults and children and also their kapok filled patent life preserver jackets. These are reversible and adjustable to different size persons. A heavy padded turn-up collar protects the wearer

from exposure in case it is necessary to take to the water in cold weather.

Another specialty of this company is a complete line of runabouts in various stock sizes as well as sprayhoods and adjustable auto type tops for all sizes of boats.



The Albany Boat Corporation, of Water-vliet, N. Y., introduces Frank P. Huested, its new sales manager. Mr. Huested is a scientist and a boatman, having had wide experience with both sail and power boats

Wicker yacht furniture and cushions to fit same are also carried in stock in a wonderful assortment of sizes and varieties.

An attractively illustrated catalog will be sent to all readers of MoToR BOATING who write to the G. H. Masten Company, Inc., at their retail store address, 38 East Ninth St., New York City, N. Y., one-half block west of Wanamaker's.

### Andersons in Holland

Maatschappij Burto of Amsterdam has been given the Anderson Agency for Holland. Five sample engines of different sizes have already been shipped him.

### The Low Cost of Boating

The H. C. of L. is a popular topic among all people but there is no need to worry about the high cost of boating.

At least that is the way it appears to W. H. B. Orchard, of Noroton, Conn., who is just starting his seventeenth season with his Barker 4 h.p. motor which he first put overboard in August, 1904.

The engine is a standard type V Barker two-cycle motor and while it was purchased under a rating of 4 h.p. it has a bore of 4 9/16 inches, larger than many motors rated at 5 or 6 h.p. It is in a 22-foot open boat of 6 feet beam, which it drives about seven miles per hour.

In the matter of cost Mr. Orchard figures his boating has not been an extravagance. At present prices the repair parts he has used on his engine during the sixteen seasons and getting it ready for its seventeenth have averaged only \$2.16 a year, and the entire cost of buying the motor and repair parts figured at present prices makes an average of only \$9.69 a year.

### J. V. B. Moves to Cleveland

The J. V. B. Engine Company have done so much more business than they anticipated that they have already outgrown their factory facilities at Akron, Ohio, and have been compelled to move to Cleveland, where they have been successful in obtaining ample factory capacity at 5912 Central Avenue, Cleveland, Ohio.

All correspondence on and after April 15 should be addressed to the new factory.

The high cost of manufacturing is causing manufacturers as much trouble as the high cost of living is the average individual.

Manufacturers of the J. V. B. four-

(Continued on page 62)



Folding cots and chairs which are readily stowed away and can be carried for the use of the occasional extra guest are valuable accessories on the cruising yacht. The Gold Medal Camp Furniture Co. of Racine, Wis., manufacture a very complete assortment of these



*"The Motor That Crossed the Atlantic"*

## Performance, not Promise has made the Scripps

YOU can't navigate very far on a gambler's expectations. "Safety at Sea" is more important than "Safety First" on your streets. You can't be too careful in selecting your power plant—make sure you're not running an experimental department for something new or untried, or that is baited with little more than a low price inducement. In marine equipment there is nothing so expensive and disappointing as makeshifts or cheapness from the standpoint of economy, safety or enjoyment. It will cost you little more to install a Scripps and experience real lasting satisfaction.

For fifteen years Scripps engines have never failed to live up to their reputation of being unusually fine engines—a more reliable or adaptable engine has never been built—because in all these years the Scripps Organization has followed steadfastly but one ideal, and that to build better than the motor boating public thinks necessary. A good engine cannot happen over night.

Years of toil and honest endeavor have made Scripps reputation world wide. Its quality, endurance and reliability are as well known to the motor boating public over-seas as at home and wherever yachtsmen congregate Scripps performance is a by-word. With the ruggedness and absolute dependability that have built Scripps reputation in the past are linked the exacting refinements and motor conveniences of the present.

### About Deliveries

Play safe on your power plant but also be certain of the company back of it—you need something more substantial than mere ambition, great expectations or good intentions.

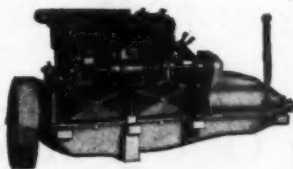
The Scripps Organization is enjoying its fifteenth year of mechanical and business success. It is ably financed, knows its costs, has its material, is doing business and making deliveries.

There is a big engine shortage this year. We predicted this ten months ago and laid our plans accordingly. Having the financial means we were able to buy our material in time and have it on the ground. All of our present engines

have been in production at least three years, are time-tried and perfected.

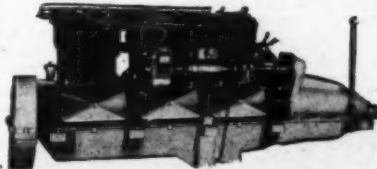
Place your order with your builder for a Scripps and you will get more than promised delivery—you will receive quick shipment and an engine that will perform for you year in and year out with the minimum operating and maintenance cost.

Scripps engines power boats of every description, runabout, cruiser, commercial, auxiliary, etc. Power ranges run from 10 to 75 H.P. in two, four or six cylinder with the option of gasoline or kerosene equipment.



**SCRIPPS  
MOTOR  
COMPANY**

631 Lincoln Avenue  
DETROIT, MICHIGAN, U. S. A.



**"Every Moving Part Enclosed"**



**RONSON WRENCH**

Eleven Handy Tools in One  
Eight standard open-end wrenches, screw  
driver, bottle opener and alligator jaw.  
—\$1.00—

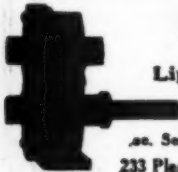
Write for dealer proposition.  
THE ART METAL WORKS  
Arenson Square Newark, N. J.

**SPRAY-HOODS  
BOAT CUSHIONS**

ATLANTIC-PACIFIC MFG. CO.  
124 Atlantic Ave. Brooklyn, N. Y.

**REBUILT ENGINES**

Paragon Reverse Gears  
At 30 Per Cent. Discount  
C. B. HAMBLÉN & CO.  
100 Atlantic Ave. Boston, Mass.

**PUMPS**

Made by the  
Lipman Mfg. Co.  
for circulating purposes  
are the very best. Hun-  
dreds of Thousands in  
use. Send for Catalogue.  
233 Pleasant St. Beloit, Wis.

**THE THOMAS LAUGHLIN Co.**

Portland, Maine, U. S. A.

**Marine Hardware**

Sold by all progressive marine dealers.  
Catalog sent free to dealers on request.

**PURDY BOAT COMPANY**

Designers and Builders of  
**EXPRESS CRUISERS**  
TRENTON, MICHIGAN

**Roebing Launch Steering Cable**

Metallic Cord Center



Strong, Reliable, Durable  
Send for Folder No. A-375

JOHN A. ROEBLING'S SONS CO., Trenton, N.J.

KEEP YOUR BOAT DRY WHILE AT ANCHOR

**HOW?**

Let the Rocking of the Boat Pump the Water  
INTRODUCTORY PRICE ONLY \$17.50

ROCK-A-WAY PUMP CO.  
81 Gorham St. Dept. A West Somerville, Mass.

**The Perils of Ali-Baba**

(Continued from page 10)

anchor, and then requested the doctor to start up the engine and stand by the wheel.

That we were by this time in a predicament may be judged from a review of the situation: 150 feet of chain out on the large anchor, 110 feet of manila on the small one, 4 feet of water under the boat and a maximum of 9 in the straits, with a wind blowing so violently that it was impossible to haul a line against it. In addition we had to run the risk of fouling the anchors with each other, of winding chain or line around our wheel, and of becoming involved with the yawl boat which was secured astern by a short painter. Despite the difficulties, however, the doctor started ahead and we proceeded to drag ourselves and both anchors into a less restricted zone of action, taking care to keep both ropes taut and at a wide angle from the boat. Keeping clear of the other boats in the harbor we at length won our way to a position of comparative safety over a good holding ground, and as the wind lulled for about twenty minutes I took advantage of the respite and weighed first the small anchor and then the large one. We then went back abreast of Swan's dock and let go anchor well up to windward.

At this anchorage we held on for quite a while with the wind steadily increasing in velocity. In order to make sure of our holding we again let go the small anchor and paid out the line to the limit of its scope. By this time I had soaked all my own clothes and was half way through the doctor's wardrobe, his silk shirts clinging frigidly to my wet back as I made shift to manage the ground tackle. His best blue trousers which fitted me like a balloon belied out with the wind whenever I hit the deck, and I had to hold on to keep from being launched from the deck like an aviator from a battleship.

All the smaller boats in the harbor either dragged ashore or filled up to the decks, and we gave full credit for our escape to the dependability of the Fay & Bowen engine. Through all the stress of the storm it never hesitated, but started instantly, throttled perfectly and got away at full throttle the instant it was needed. But the rolling of the boat put the storage batteries out of commission and until the following Thursday when we received new batteries from Washington, we had to start the motor with the cranking lever. One yawl was recovered at the conclusion of the storm.

During the whole two-weeks' run the engine ran like clockwork, and with an economy which surprised me, used as I am to the Fay & Bowen product. She averaged  $3\frac{1}{2}$  miles on a gallon of gasoline and 70 miles on one filling of the lubricator, and she batted out her 12-mile cruising speed for hour after hour without a tremor or a whimper. I have taken longer and more exciting cruises than this one on Ali-Baba, but never have I been less troubled by mechanical annoyances.

**NO MOTOR BOAT  
COMPLETE WITHOUT  
STEWART CUSTOMBILT  
NECESSITIES**

SEE OUR AD IN NEXT MONTH'S ISSUE

**The Stanley Engine**

Now owned and manufactured by  
Sutter Brothers

No. 44 Third Ave., N. Y. City

Agents for Fay & Bowen, Clay heavy duty,  
Fulton Engines

Joe's Reverse Gears, Wizard Magnetos,  
K. W. Coils

**SINCLAIR  
OILS****POLARINE**

The Standard Oil  
For All Motors

Standard Oil Co. of New York

**Tillinghast Racing Green**

"PROVED BY TEST"

"Always a clean racing bottom"

for either the yacht or commercial boat be it  
built of steel or wood.

TILLINGHAST PRODUCTS CORP.

299 Broadway New York City



Hunting Boats, Canoes, Rowboats, Fishboats  
and Motor Boats. Catalog Free. Save Money.  
Order by Mail. Please state what you are  
interested in.

THOMPSON BROS. BOAT MFG. CO.  
1907 Ellis Avenue Peshtigo, Wis.

**RADIO TELEGRAPH and  
TELEPHONE EQUIPMENT**

We design and manufacture complete,  
simple, rugged and compact radio equip-  
ment for steam yachts, and motor cruis-  
ers, for communicating over any distance.  
Catalogs furnished on request.

WIRELESS SPECIALTY APPARATUS CO.  
Boston, Mass.

**WICKER-KRAFT  
YACHT FURNITURE**

Used on the finest boats. Regularly supplied by  
highest grade boat builders. Wicker-Kraft Chain,  
fitted with life belts, are an original Wicker-Kraft  
idea.

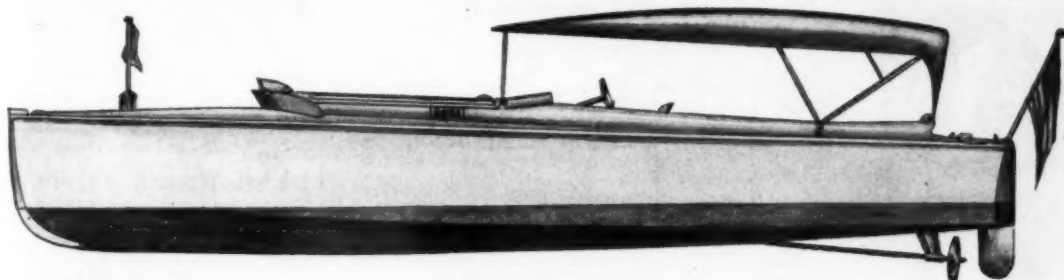
Write for illustrated catalog.

WICKER-KRAFT CO., Newburgh, N. Y.

**FINISHED CRANK SHAFTS**

We are furnishing them to some  
of the leading marine engine  
builders. Carbon and Alloy Steel.  
Heat Treated to your own speci-  
fications. We grind all Pins and  
Bearings. Forged, machined, and  
finished complete in our own plant.  
Let us quote you.

P. H. Gill & Sons Forge and  
Machine Works, Brooklyn, N. Y.



## Your Runabout for Camp or Club

A snappy model of graceful lines tailored to a high degree of finish. A buoyant boat that rides well and is easy to drive and handle. A speedy boat that is dry and safe. A comfortable boat, not too large for inland waters, yet with capacity to meet one's needs.

These are the distinctive features that will return you the maximum of boating pleasure—

And these are the outstanding features that distinguish

## The New 26-foot Albany Fast Runabout

Modified V-bottom.  
Maximum strength.  
Seven passenger cockpit.  
Controls on port side.  
Raised hatches to allow more room for motor.  
Curled hair cushions and lazyback.  
One man top.

Polished plate glass windshield—disappearing type.  
Electric generator and starter.  
Electric lighted.  
4-cylinder 4-cycle engine.  
Unit power plant.  
20 m.p.h. speed.  
Immediate Delivery.

The Albany fleet comprises sister boats: 30- and 35-foot Mahogany Fast Runabouts; 36-, 40-, 50- and 57-foot Express Cruisers de Luxe. Detailed specifications and pictures of the boat that interests you will be forwarded on request.

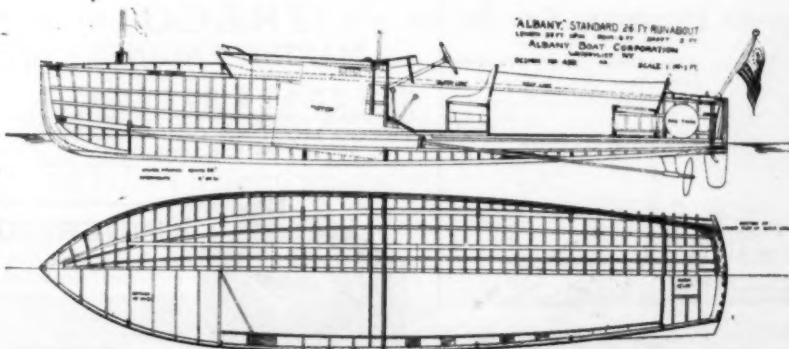
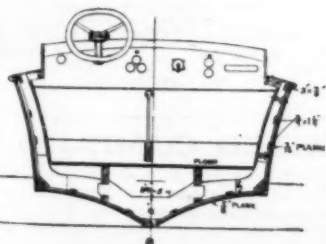
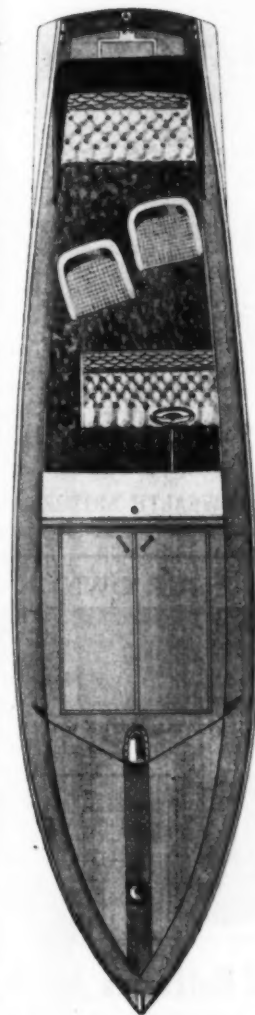
*To insure accuracy of line this boat is built on a form, with framework of the style shown in detail on the construction drawing herewith—a style of frame that heretofore we have used only on the most expensive built to order boat.*

**Albany Boat Corporation**

7th Street

Watervliet

New York





## Your Ever Ready Musical Companion

**M**USIC wherever you are and whenever you want it is made possible by this superb little instrument which weighs only 15 pounds complete and plays ALL MAKES of disc records and all sizes.

THE INSTRUMENT OF QUALITY  
**Sonora**  
CLEAR AS A BELL  
**PORTABLE**

is of typical Sonora quality and has a splendid full tone. It is not a toy but is a high class instrument in every detail.

Its dimensions are  $10\frac{3}{4} \times 10\frac{3}{4} \times 10\frac{1}{2}$ . The case is of the finest calfskin, leather lined, and is provided with well made spring locks. The motor is sturdy and reliable and gives complete satisfaction.

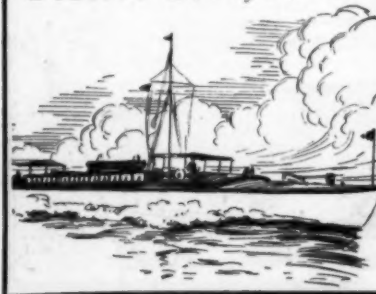
Here is the phonograph you simply must have for yachting, motor, and vacation trips.

**Price \$75**

**Sonora Phonograph Co., Inc.**

George E. Brightson, President  
Fifth Avenue at 53rd Street 279 Broadway  
New York City

Dealers Everywhere



## Suitable Rudder Areas

(Continued from page 27)

medium and a speed of 14 miles, to find rudder area.

The base of the chart is divided into divisions representing the length of the boat in feet. The end is laid off into coefficients.

Finding the length 30 feet on the base, we follow it vertically to where it intersects the curve for cruisers with speed of 12 to 20 miles per hour. Following the point of intersection to the edge horizontally we find the coefficient to be 34.5.

Substituting in the formula we have  
Length 30x3 draft

= area of rudder in sq. ft.

34.5 coefficient

The answer 2.6 square feet will be the necessary rudder area.

J. H. S., Jersey City, N. J.

## Approximates the Correct Rudder Area

Theoretically the area of a rudder should be one-fifth the area of the lateral plane of the boat, but the following table is close enough for ordinary cruiser work with speeds up to 10 miles per hour.

For 20-foot boats—	1½ square feet
25-foot boats—	2 square feet
30-foot boats—	3 square feet
35-foot boats—	4 square feet
40-foot boats—	5 square feet

For faster boats cut down the area of the rudder. For slower boats increase outboard rudders should have about fifteen per cent. more area below the waterline than an ordinary rudder.

Remember it isn't the size of the rudder altogether that makes the boat steer properly, but the combination of propeller, etc., that make up the after underbody of the boat. Above all things, don't hang the rudder too close to the propeller.

C. R. M., North Dartmouth, Mass.

## Revised Editions of Light-house Service Publications

Revised editions of the following publications of the United States Lighthouse Service have recently been issued by the Department of Commerce: Light List, Great Lakes, United States, and Canada, corrected to April 1, 1920. Buoy List, Sixth Lighthouse District, embracing the waters from Cape Lookout to Hillsboro Inlet, corrected to March 1, 1920.

The publications referred to may be obtained from the Superintendent of Documents, Washington, D. C. The price of the publications in question are 30 cents each for light lists, and 20 cents each for buoy lists.

## TREGO MARINE ENGINES

Two cylinders. Bore 5" Stroke 5"

12 H. P. at 400 R. P. M. 15 H. P. at 500 R. P. M.  
20 H. P. at 500 R. P. M. 25 H. P. at 500 R. P. M.  
Some excellent territory still open to reliable dealers  
**TREGO MOTORS CORPORATION**  
Builders of the U S Liberty Engines  
New Haven Connecticut



## UNDERLIGHTED COMPASSES

save eye strain. You don't mind your trick at the wheel with a "Perfect" Underlighted Compass. Send for interesting catalogue and get acquainted with our instruments, Compasses, "Cole" Course Protractor, Bearing Finders, Peloruses and Stands.

**MARINE COMPASS COMPANY**

Box 45, Bryantville

Massachusetts

Advertising Index will be found on page 130

## TRENCO TELETRIC LIGHTING PLANT

Small, Portable, Accessible

For the Cruiser, Houseboat, Bungalow or Camp.

6, 12, 24 or 32 Volt Size

**TREIBER ENGINE CO.**

Yonkers

New York

Every Boat Should Be Fully Equipped With

## EVER-WARM Safety Suits

YOU CAN'T CHILL—YOU CAN'T DROWN

Ask for Pamphlet "22B"—it tells the whole story.

**NATIONAL LIFE PRESERVER COMPANY**

11 BROADWAY, NEW YORK

Tel. Bowling Green 8609 Territorial Agencies Granted

## BOAT CEDAR

Just received a few carloads of choice Cedar. Can make immediate shipment. Good assortment of sizes. Also on hand: Oak, Mahogany and other woods for boat building.

**WM. P. YOUNGS & BROS.**

35th Street and East River, New York City

## BURGER BOATS

COMMERCIAL AND PLEASURE

If you plan to build a new boat this spring it will pay you to get our prices.

We are prepared to furnish any boat up to 200 feet for all purposes and we guarantee satisfaction.

Write for information

**BURGER BOAT CO.**

Manitowoc,

Wisconsin

## Quayle Oil Engines

FOR MARINE SERVICE

**COMMONWEALTH MOTORS CO.**

326 W. Madison St. Dept. E-1 Chicago, Ill.

## BUILD YOUR OWN BOAT

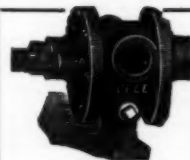


—Cruiser, work boat, open launch or row-boat—from our knock-down frames or patterns. Save 10 to 15% the Cost. Catalog on request.

**DEFOE BOAT & MOTOR WORKS**

3216 State St.,

Bay City, Mich.



If you want good circulation on your Automobile, Launch or Motor Boat, use a **LOBEE PUMP**  
Lobe Pump & Machinery Co.  
57 Bridge Street,  
Buffalo, N. Y.

## World Batteries Are Best

Plates won't buckle and are always damp. No wood, rubber or celluloid separators—won't splash—can't be over charged.

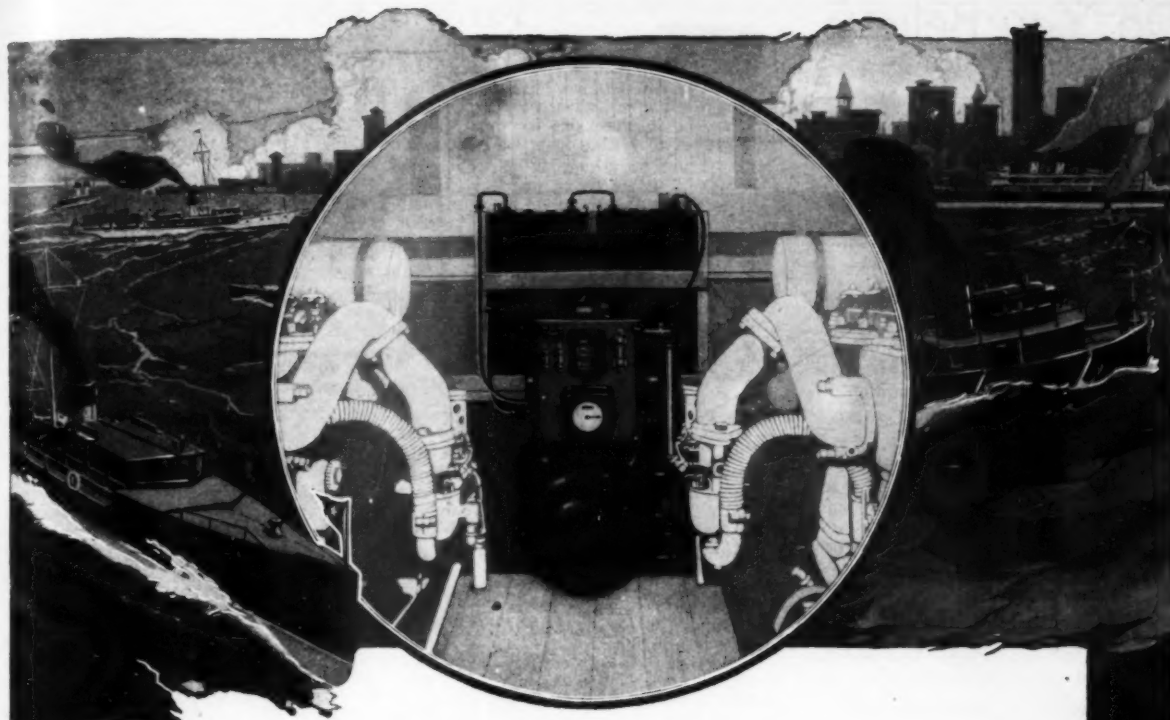
47% greater efficiency and 3 year guarantee.

Write for particulars

**WORLD BATTERY COMPANY**

1235-37 Wabash Ave. Chicago, Ill.  
Sherman Bros. Co., 208 S. La Salle Street, Chicago  
Sole Export Distributors





## DELCO-LIGHT Marine Set

**P**LENTY of electric light and power  
for your boat!

That is what the Delco-Light Marine Set offers you. It supplies current for all lights needed on deck and below, and for power purposes, including fans, motors and pumps.

Delco-Light service is ample, continuous and *independent of the main machinery.*

Write today for the Motor Boat Booklet.

**DELCO-LIGHT COMPANY**  
DAYTON, OHIO

## Do You Believe Your Government?

If your Government told you that it had conducted exhaustive tests on a new device and found that it would give you a 37% better engine, save up to 35% in gas, prevent carbon trouble, and spark fouled and dirty plugs, don't you think that you would want to equip your engine with it?

If on top of that a French aviator told you that his government made the same device standard equipment on all airplanes with wonderful results, wouldn't you be itching to put it on your engine?

A. Press, Professor of Electrical Engineering of Berkeley, Cal., watched Sparko-Gap working on U. S. sub-chasers, on Liberty airplane engines, Liberty truck engines, and popular commercial motors in Government laboratories at Washington. He states that "the Sparko-Gap will fire plugs in conditions two hundred and fifty times as difficult as will an ordinary ignition system without them; so that plugs will fire no matter how dirty they are, and even with broken porcelain."

### Reason for Sparko-Gap

Oil and gasoline, under compression, form a serious obstacle to the passing of current across the spark-plug points. For successful ignition a quick, high-powered spark is required. The U. S. Government, after many tests, stated that this quick, high-powered spark could be obtained only by the condensing action obtaining in the Sparko-Gap. France made it standard equipment on all airplanes. The U. S. Government tests show that it will:

INCREASE POWER UP TO 37%  
PREVENT CARBON TROUBLE  
MAKE DEFECTIVE PLUGS FIRE  
SAVE UP TO 35% IN GASOLINE



Price \$1.50 each

Guaranteed for life of engine. Fits all plugs and engines without attachments or motor adjustments. Write or wire for Dealer Proposition. Patented in all important countries.

### SPARKO-GAP CO.

Dept. MB - 29 Beekman Street - New York

Dept. MB, SPARKO-GAP CO.  
29 Beekman Street, New York

Enclosed please find \$..... for a set of..... Sparko-Gaps at \$1.50 each. A set consists of one for each cylinder. It is understood that if I am not more than pleased you will refund my money in full.

Name .....  
Street .....  
City .....  
State .....

## Yard and Shop

(Continued from page 56)

cylinder marine engine have been compelled to announce, effective May 1, 1920, an increase in the price of their motor from \$1,000 to \$1,250, f.o.b. Cleveland, O.

Production of the J. V. B. engine is now coming through in excellent shape at their new factory in Cleveland and orders placed immediately will receive prompt attention.

### Improved Evinrudes

The Evinrude Motor Co. of Milwaukee, Wis., have improved the timer lever on their motor.

A new timer lever enables the operator to get a better grip on the timer when advancing or retarding the speed, such as for trolling, etc.

This latest model Evinrude with the new timer lever can be seen at local sporting goods or hardware stores.

Write for the latest Evinrude catalog, also the name of the dealer in whose store the motors are on display.

### New Member in the Frisbie Family

The Frisbie Motor Company announces another member of the already large and rapidly growing Friendly Family in the St. Lawrence River Motor and Machine Company of Clayton, N. Y. That concern will handle Frisbie valve-in-head motors through the Thousand Islands territory, and will be in a position to render through their shop and sales facilities proper service to all owners of Frisbie motors in their locality, and to all contemplating the purchase of them.

### Novel Design for Fast Runabout

Knowing the limitations of the accepted type of displacement runabout hull, S. L. Leiby, of Charleston, S. C., set about to find a remedy. The result of his efforts is evidenced in the double V-bottom patented design which he has perfected. This design is a combination of the displacement and hydroplane types and is remarkable because of its efficiency and seaworthy qualities. This is a logical design, and while only a few boats have been built thus far, it shows great possibilities; the construction is practical, simple and of great strength.

The characteristic bow of the displacement type boat has been studied and in this double V-type the energy ordinarily expended in thrusting aside a column of water is utilized to help in lifting and driving the hull. These hulls are said to drive easily, with an entire absence of the tremendous commotion generally accompanying a fast boat. Pounding in a rough sea is eliminated, a cushion of air and water under the hull absorbing all shocks.

The Southland Steamship Company has secured the right to manufacture these hulls under license from the inventor and expect to be able to furnish a standardized hull of 24 feet length in this model very soon.

In addition to the above the Southland Steamship Company are building in their yard a series of standardized 40-foot express cruisers. These will be an out-and-out standardized product equipped with an eight-cylinder Model F. M. Sterling motor.

### Water Carnival in Canada

Motor boat enthusiasts who may be taking a trip up the Trent Waterway in the month of June will have a treat in store for them if they reach Barrie on Lake Simcoe on the 21st of June, as on that and the following day there is a big celebration to be held there at which all kinds of sports will be indulged in, it being under the auspices of the War Veterans. It is likely that there will, too, perhaps be a fast motor boat race, when any persons going up from the States will have an opportunity of seeing how fast our Canadian cousins' motor boats run. It will be well worth seeing, no doubt, and a great attraction as well as a break in the trip.

### Astonishing Speeds

In some trials on the Seine River near Paris the French motor boat, Sunbeam Despujols, is reported to have broken existing speed-boat records. Carried out on a 500-meter course with a slight current, this is reputed to have been covered in from 14 to 16 seconds. Translating this into miles gives us the astounding result of 75 miles per hour. The Sunbeam motor used in this boat is 450 h.p. and by means of a multiplying gear the propeller is turned at 3,000 r.p.m.

Should this be the case and speeds of this kind are being made today in France, our American contenders for the Harmsworth Trophy will have to exert themselves most strenuously in order to bring the trophy back.

### J. L. Killean Joins Sterling Forces

A recent addition to the staff of the Sterling Engine Co., of Buffalo, is J. L. Killean, who now occupies the berth of sales manager with this company. It is his intention to provide Sterling users and buyers with the same assistance and co-operation they have had heretofore.

### A World's Record in Magneto Production

In 1918 the average monthly production of Bosch magnetos was 9,031. In March of this year the production was nearly 40,000, an increase of 440 per cent. With further increases planned, it is expected that fully half of the world's output of magnetos in 1920 will come from the big plant of the American Bosch Magneto Corp., at Springfield, Mass.

### Moving Day for Columbian Bronze Corporation

Due to the rapid expansion of its business in the manufacture and sale of Columbian propellers for motor boats, motor ships and steam vessels, it has been necessary to find larger quarters for its executive and sales offices.

The new offices will be located at 522 Fifth Avenue, corner Forty-fourth Street. More than twice the present space will be available, and a better reception can be given to friends calling.

Owing to the fact that the new offices are located so conveniently to the large railroad terminals and the prominent hotels, the officers extend a very hearty invitation to their friends to call and make their headquarters with them while in New York.

# Economical— Dependable

**W**HETHER you are grooming your boat for a championship regatta or for the summer's pleasure cruising be sure that you install the proper piston rings in the motor.

Many owners do not realize that the efficiency and dependability of their craft is largely dependent upon the piston rings. Consequently, they blame the motor for loss of compression; the lubrication system for large oil bills and fouled spark plugs while in reality a good set of piston rings would remedy these faults.



has been giving economical and dependable service for eleven years.

It cuts down gasoline bills because it conserves every ounce of power developed by your motor. By pressing evenly against the cylinder wall at all points it forms a perfect seal past which exploding gases cannot escape.

The Wasson process of hammering a cast-iron ring by graduated blows has proved to be the only method of securing a perfect fit in the cylinder.

It saves oil. With the Wasson ring oil performs its duty of lubrication and is not sucked into the firing chamber to foul spark plugs and valve heads.

It has proved its dependability repeatedly from the time it was the first hammered piston ring on the market. A conclusive proof of this dependability is that it was the unanimous choice of the record breaking winners at the mid-winter motor boat classic held recently at Miami, Fla.

By installing the Wasson ring in your motor boat's engine you will be assured of perfect compression, economical consumption of oil, and dependable service at all times. Write to the nearest Wasson distributor for your piston rings.

## LAKE SALES CO.

1947 Broadway

New York City

SOLE SALES AGENT FOR

WASSON PISTON RING CO.

PLAINFIELD, N. J.



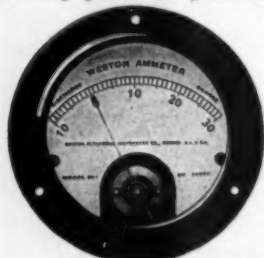
### Wasson Distributors

Oliver H. Van Horn Co., New Orleans, La.  
W. M. Whaley & Co., Norfolk, Va.  
Frank N. Westcott, Watertown, N. Y.  
C. Allen Fulmer, Dayton, Ohio.  
Sanford Brothers, Chattanooga, Tenn.  
R. & L. Bearings Co., Philadelphia, Pa.  
L. Gay Strods, Lexington, Ky.  
Southern Auto Supply Co.,  
Chattanooga, Tenn.  
A. Schweinbold,  
113 Olive St., Peoria, Ill.  
E. L. Taylor & Co., Inc., Richmond, Va.  
Tampa Hardware Co., Tampa, Fla.  
Peter L. Thompson,  
176 Brookline Avenue, Boston, Mass.  
U. S. Manufacturers Sales Corp.,  
2184 Michigan Avenue Chicago, Ill.  
Stamford Tire Co.,  
125 Main St., Stamford, Conn.  
City Auto Co.,  
585 Fairfield Avenue, Bridgeport, Conn.  
Geo. A. Lewis, Waterbury, Conn.  
Miller & Payne,  
242 No. 4th Street, Columbus, Ohio.  
Washington Machinery & Supply Co.,  
Spokane, Washington.  
Triangle Parts Co.,  
829 Van Ness Ave., San Francisco, Calif.  
Baldwin Supply Co.,  
Charleston, W. Va.  
Bailey-Lesby Co., Charleston, S. C.  
W. E. Cody Co., Columbus, Ga.  
Corbin Supply Co., Macon, Ga.  
Crumley-Sharp Hardware Co.,  
Atlanta, Ga.  
Consolidated Grocery Co.,  
Jacksonville, Fla.  
De Angeli Brothers, New Brunswick, N.J.  
Luchs Sales & Eng. Co.,  
Minneapolis, Minn.  
Central Auto Supply Co.,  
129 Central Avenue, Plainfield, N.J.  
Motor Parts Co.,  
134 Bay St., Toronto, Canada.



## You May be Next!

Running against a strong tide and heavy head wind and his ignition failed —battery absolutely dead! With a



**Weston**  
Model 301

### Ammeter On Your Bulkhead

you are protected. It gives you warning, before it is too late, if your battery is being undercharged. Weston Ammeters are highly efficient, yet rugged enough to stand the hardest service. They are always on guard over your battery, warning you instantly when your generator fails to deliver its proper charge. Write us.

Weston Electrical Instrument Co., 28 Weston Avenue, Newark, N. J.

## You Can Build Your Own Boat

and save 2/3 the cost  
By the BROOKS K. D. SYSTEM



The Brooks Guarantee:  
Your Money Back if  
You Are Not Satisfied

Send for catalogue  
showing all models.

Brooks Boats are handsome, seaworthy, up-to-date in design and easy to build. We also build complete boats.



BROOKS MFG. CO., 1101 Rust Ave., Saginaw, Mich.

## ONE WAY ONLY—THE BEST WAY—BUY!

We Sell Our Sets

## Wireless for Ship and Land Stations

CUTTING & WASHINGTON RADIO CORPORATION

GENERAL OFFICES

6 and 8 West 48th Street, New York, N. Y.

## FITTINGS and EQUIPMENT For YACHTS and MOTORBOATS



2 & 3 SOUTH STREET, NEW YORK CITY

WE SPECIALIZE IN MARINE HARDWARE  
FOR ALL TYPES OF VESSELS

Factories at Grassers, Boro. Richmond, N. Y. City and New York City

Send 25c to cover delivery 1090-page complete Catalog



### Automatic Extension Reel FOR ELECTRIC LAMPS

Patented Jan. 30,  
1917  
Approved by the  
Underwriters

This fixture enables you to inspect your boat or engine at any distance from the reel. With this outfit installed in your boathouse or machine shop you can take your lamp with you to any part of the building—an automatic lock holds the lamp at any desired distance. The mechanism automatically rewinds the cord when you are through with the light. It is equipped with 25 ft. of reinforced cord, handle, socket and lamp guard. Write today for prices.

The Cincinnati Specialty Mfg. Co., Inc., 1920 Powers St., Cincinnati, Ohio

## Freeport Engine Co

450 Freeport St.  
Dorchester, Mass.  
Engine Repairing and Overhauling  
of the highest class

### Send Us Your Repair Work

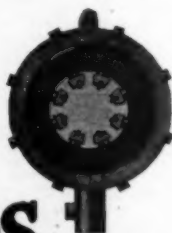
We do nothing but engine repairing and we do it right. We make any part for any engine or complete engine to your order. We use only the best material and workmanship and give quick service. Send us your engine to overhaul and it will be as good as new. We do cylinder grinding, welding, etc., and maintain a repair and tow boat that goes anywhere within fifty miles day or night. We have a few second-hand engines that are real bargains.

Tel. Dorchester 5573M.

## A Hand Tool Producing Accurate Results That Surpass an Expensive Power Driven Machine

Adjustable on all types of motors.  
One simple operation for adjustment.  
Guaranteed accuracy to one-quarter thousandths of an inch.  
Can be operated without removing shaft from engine.  
A Peters' Crankshaft Grinder will true egg-shaped crank pins in one-fifth the time ordinarily required by any other method.

Price, \$75.00.  
Aluminum Brazing Solder Company  
Widener Building Philadelphia, Pa.



**PETERS**  
Patented

## CRANKSHAFT GRINDER

## AJAX MANIFOLDS, GASOLINE AND OIL TANKS

For Marine Engines  
Pleasure Cars and Trucks  
Automobile and Airplane Honeycomb  
Radiators

Welding, Brazing, Repairing  
Ajax Overstrength Ford Radiators

Everything in Sheet Metal for the  
Automotive Industry

AJAX AUTO & AERO SHEET METAL CO., Inc.  
247 West 55th St., N. Y.

## GRAY-PRIOR

FOUR CYCLE  
MARINE MOTORS  
*Built up to a Standard-not down to a price*

### A Clean-Cut Power Plant

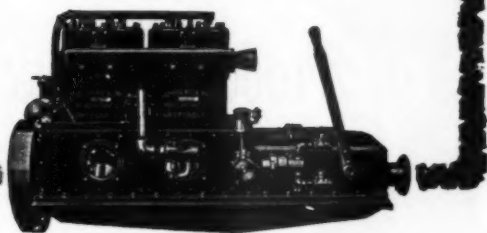
For Commercial Boats and Cruisers

#### Model D-4, Medium Heavy Duty

36 Horse Power Bore, 4½ inches Stroke, 8 inches

Write today for full description and prices

The Gray & Prior Machine Co.  
56 Suffield Street  
Hartford, Conn., U. S. A.



## TIEBOUT'S

LOCKS AND LATCHES FOR DOORS AND HATCHES

### SPRING OVERHAULING

We can supply the new hardware you will need—Blocks, cleats, rings, locks, latches, anything from anchor to bin-nacle light.

We have been supplying Marine Hardware to owners and builders throughout the world for four generations.

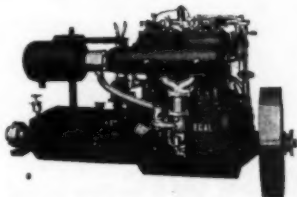
You can depend on Tiebout quality, deliveries and prices.

W. & J. TIEBOUT

118 Chambers Street, New York City



### Nineteen Years of Knowing How



to build four cycle marine engines, is the enviable record of the

## REGAL

Sizes 2 H.P. to 50 H.P. One, two and four-cylinder. Designed to operate with gasoline, distillate or kerosene.

## REGALITE

The  
Last Word in  
Electric  
Lighting  
Plants



For yachts, stores, homes and mills. A ¾ K.W. generator. Air cooled, four-cycle, 2 H.P. motor, direct connection.

Regal Gasoline Engine Company  
74 W. Pearl Street Coldwater, Mich.

## UNIVERSAL SUPPLIES

*are noted both for  
quality and low cost*

Compare our prices with others, then compare our goods and if ours are not as good or better we don't want your patronage.

Class 1 Equipment.....	\$6.00
Brass 1" Stuffing Boxes..	1.50
Brass Fog Bells .....	1.00
Complete Equipment,	
Class 2 .....	10.00

Send for one of our catalogs and let us show you how to save money

UNIVERSAL  
MOTOR BOAT SUPPLY CO.  
ATLANTIC HIGHLANDS, N. J.

## BLOOD BROTHERS UNIVERSAL JOINTS



Absolutely Dependable  
Do Not Throw Grease

**BLOOD BROTHERS MACHINE CO.**  
*Pioneer Makers of Universal Joints*  
ALLEGAN, MICH.



Established 1875

## L. NICKERSON

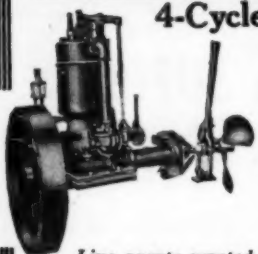
YACHT SAIL MAKER

Awnings, Tents, Flags, Covers and Canvas  
Goods for All Purposes  
TENTS TO RENT

173 STATE ST., corner COMMERCIAL  
BOSTON, MASS.

## STANDARD KID

4-Cycle Engines of Quality



Made in six sizes—light, medium, and medium heavy duty. 3 h.p. to 20 h.p.—1 to 2 cylinders.

Uses either gasoline, distillate, or kerosene.  
Suitable for workboats, fish skiffs, sampans, pleasure boats, etc.  
Working parts on lightweight models interchangeable with Ford engine parts.

Live agents wanted in all parts of the world.

**SEATTLE-STANDARD ENGINE MFG. CO.**  
SEATTLE, U. S. A.

STEARN'S MCKAY  
**MARBLEHEAD  
ANTI FOULING  
GREEN  
BOTTOM PAINT**

FOR STEEL  
OR  
WOOD  
STAYS CLEAN

Gives the greatest efficiency with the smallest fuel consumption.  
Semi-enamel White for topsides.  
Stearns-McKay Mfg. Co.  
Marblehead, Mass.



WHICH BOAT WASTES FUEL?



**DUPONT** Marine Motors are built to meet the requirements of the most exacting owner. duPont Engineers have combined a reliability which is absolute with complete accessibility in these power units.

**DUPONT MOTORS, INC.**  
WILMINGTON DEL.

Don't cheapen a high-class cruiser by installing a flimsy spark and throttle control.

The Erico Spark-and-Throttle Control will add

## A TOUCH OF DISTINCTION

to any craft.

Substantial Ornate

Send for circular  
**Hubbard H. Erickson & Co.**  
MARINE EQUIPMENT  
3037 to 3045 N. Western Ave. Chicago

## America's Finest Motor Boats



Whatever you want—Runabout, Speed Boat, Cruiser, Row-boat or Canoe.

There's a **Racine** Made for you

—or we will design and build one to meet your needs.  
Tell us the type of boat in which you are interested and we will mail you our special catalog immediately.  
**RACINE BOAT COMPANY, 1812 Clark St., Racine, Wisconsin**

## NUPRO MARINE GLUE

(American Standard)  
INTRODUCED 1907



REGISTERED

eliminates the necessity of making certain repairs every year. Deck seams and seams in the hull below the water line can be made tight and kept leak proof with Nupro Marine Glue and Hull Seam Composition.

For Sale by Leading Ship Chandlers and Hardware Dealers

**NEW PROCESS CHEMICAL CO.**

39-41 Cortlandt Street New York City





## Makes Motors Move!

In any weather—under severest conditions—the Spark Plug that is dependable.

No porcelain to break, check or crack because mica-insulated. Leak, heat, oil and trouble-proof.

Big brass jacket cannot rust into cylinder. Firing-points practically self-cleaning.

The Plug that gets you to Port.

Made in all sizes for all motors. \$1.50 each. Order direct if dealer cannot serve, stating size and quantity.

**Oakes & Dow Company**  
308 Atlantic Ave., Boston, Mass.



## PRESSURE OIL KEROSENE STOVES

*For Marine and Camp Use*

### The Ideal Stove for Small Boats

This stove has the famous "Khotal" Hydrocarbon Burner. It burns without smoke or smell, automatically generating its own fuel gas from common kerosene.



For motor and sail boats, camping or general use where a small and compact stove is wanted. Its cheapness, cleanliness, heating power and economy has made it famous.

Made with one, two and three burners, with or without rail. Specially galvanized to withstand the action of salt air.

**ROYAL BLUE STOVES**, also made in one, two and three burners, with or without rail.

Sold by leading dealers. Write today for catalog and name of nearest dealer.



**William H. Otto Metal Goods Corp.**  
401-417 St. Pauls Ave., Jersey City, N. J.

## IMMEDIATE DELIVERY

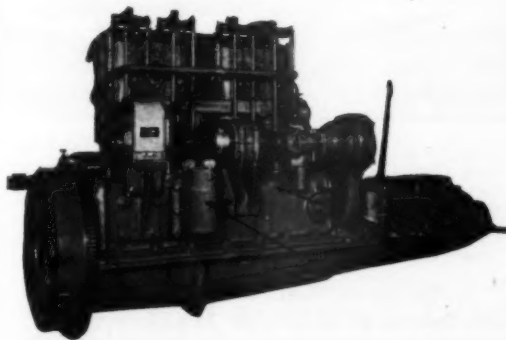
ON A LIMITED NUMBER OF



## 40 H.P. Medium Heavy Duty Motors

Write for Catalogue

**Knox Motors Associates**  
SPRINGFIELD, MASS.



## POWELL

### "ADJUSTO" GENERATOR-VALVE



Made in sizes  $\frac{3}{8}$  to 2" inclusive.

Write for "Adjusto" Circular.

### WE MANUFACTURE

Gasoline Cocks—Strainers—Priming Cups  
Oil Cups—Grease Cups—Lubricators

**The Wm. Powell Co.**  
CINCINNATI, OHIO

## Run Your Boat on Kerosene

Cheaper than gasoline and equally good when used with the

### OLSEN KEROSENE VAPORIZER

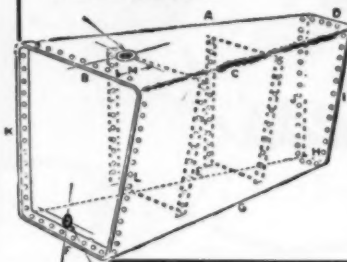
*Sold on 30-Day Money-Back Guarantee*

Fits any 1" to 3" carburetor. Perfect combustion—no waste, smoke, or smell. Greater flexibility and mileage—less carbon. Fuel costs greatly reduced. Send for details.

#### U. S. VAPORIZER COMPANY

214 STATE STREET BOSTON, MASS.

Gasoline Tanks, Air Whistle Tanks, Mufflers, Stacks, Special Plate and Sheet Metal Work for Pleasure Boats.



### L. O. KOVEN & BROTHER

Main Office,  
158 Ogden Ave.,  
Jersey City, N. J.

Branch, 50 Cliff St.,  
New York City.

## GOLDEN GLOW SEARCHLIGHTS



"Golden Glow" Search Lights are made in many models—a size for every boat. The powerful "Golden Glow" ray of light will penetrate the thickest fog or darkness to a much greater extent than brilliant white light. It is non-blinding and projected from a specially ground glass reflector of true parabolic form. The light will penetrate from 300 feet to one mile, according to the size and model of the Search Light.

You'll find the complete line illustrated and described in our Bulletin No. 159—write for it.

#### Electric Service Supplies Co.

Manufacturer of Electrical Supplies  
PHILADELPHIA.....17th and Cambria Sts.  
NEW YORK.....50 Church St.  
CHICAGO.....Monadnock Bldg.

Crockett's Spar Composition is the only varnish which will last a season on a deck

THE DAVID B. CROCKETT CO.  
Bridgeport, Conn.  
The Bisell Varnish Co., Successors

## Berling Magneto

WORTH MORE DOES MORE

## The Gordon Silencer and Under-Water Exhaust

No Noise No Smoke  
No Pounding No Grease  
Does not retard motor

With Fresh or Salt Water Fittings

F. O. B. Cleveland

**\$12.00**

### The Gordon Propeller & Mfg. Co.

9001 Desmond Ave., Cleveland, Ohio

## Southland 45-Foot Express Cruisers

A stock boat as fine as any built to order. Selected white oak frames, clear cypress planking. Inside finish white, with mahogany trim; outside finish in mahogany.

Length 45'-0"  
Beam 10'-6"  
Draft 3'-3"

Cruising radius 375 miles  
Accommodates four and crew  
Speed 22 knots and better

Power—One 8 cylinder Model FM Sterling

#### SOUTHLAND STEAMSHIP CO.

Shipbuilding Department — Savannah, Georgia



All types of  
quality boats

Will help you enjoy  
your summer

Write for literature to No. Tonawanda, N. Y.

Richardson Boats are sturdy, seaworthy, and sure. And they are constructed with all the modern comforts that give pleasure, service and satisfaction to their owners.

Knockdown frames or complete outfit of the highest type built at the lowest possible cost.

#### RICHARDSON BOAT COMPANY

370 Sweeney St.

No. Tonawanda, N. Y.

# CHAS. CORY & SON, INC.

New York—290 Hudson St.  
Phila., Pa.—207 Market St.

ESTABLISHED 1845

San Francisco, Cal.—585 Mission St.  
Seattle, Wash.—83 Columbia St.

**Electrical and Mechanical Telegraphs**  
**Marine Electric Lighting Fixtures and Wiring Accessories**

Special attention given to Yacht and Motorboat electrical equipments, including fixtures, wiring accessories, bells, annunciators, push buttons, etc.

Mechanical Communication Appliances, including engine telegraphs, gongs, gong pulls, sounders, voice tubes, fittings, etc.

Complete electrical and mechanical installations for all classes of vessels solicited.



We also manufacture Universal Joints, Couplings, Stern and Thrust Bearings, Ball Races, Power Slip Pumps.

## The Michigan Reversible Propeller Wheel

Don't take up valuable room in your boat with a cumbersome and troublesome reverse gear.

With a Michigan Reversible Propeller on your boat you are free to navigate without danger of collisions and with the same safety as with a reverse gear costing many times more. Besides this you are saved the annoyance of repairs and break-downs so often occurring with a reverse gear.

Michigan Propeller Wheels are designed and constructed for service and results. A propeller for your every need.

Write to-day for information.

**MICHIGAN WHEEL COMPANY**

C. J. LITSCHER, Pres.

GRAND RAPIDS

1240 Monroe Ave.

MICHIGAN

Improved  
Motor  
Boat  
Closet

Figure  
1404

Dimensions: 18  
x 16 x 11" high  
to top of bowl;  
2 1/2" cylinder.  
For above or  
below water  
line.

The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover. All prices subject to market advances, which are continually changing.

THE J. H. CURTISS CO.



**The J. H. Curtiss Co.**  
Pioneer Specialists in Marine  
Sanitary Fixtures

Since our advertisement appeared in the first issue of *Motor Boating*, December, 1907, hundreds of Curtiss fixtures have been installed in motor cruisers and yachts of all sizes, including some of the finest boats launched within this period.

The Curtiss line is exceptionally complete, varied in type, size and price to meet every possible requirement. Each model has been designed in accordance with our wide experience in boat work and can be depended upon in quality, service and durability no matter whether it is our highest or lowest priced model.

"PRICES ON APPLICATION"

**With Pump**

Cock on pump swings upward, thus preventing breaking of bowl. Soap-dish is porcelain and removable.

No. 5  
Height, 19 in.  
Width, 19 in.  
Depth Closed,  
6 inches.

Quartered Oak  
Case, or Ma-  
hogany Case.



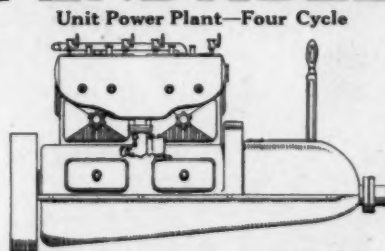
Lining and Fixtures  
Nickel-plated. Porce-  
lain Bowl. Mahogany  
or Quartered Oak Case.

2 South Street, New York

## THE DEPENDABLE MOTOR

### WHY?

Practical Experience  
Accurate Workmanship  
Engineering Genius  
Finest Materials



Unit Power Plant—Four Cycle

20 H.P.  
Medium Duty Model  
Four Cylinder

35 H.P.  
Medium High Speed Model  
Long Stroke

Write for Booklet C—Immediate Deliveries  
**TREIBER ENGINE COMPANY, Yonkers, New York**

When writing to advertisers please mention *MOTOR BOATING*, the National Magazine of Motor Boating



## Miller Marine Distillate Engines

*Use Gasoline, Kerosene  
with Equal Efficiency*

Miller Marine Motors have been sold for nearly twenty years solely on the basis of reliability and efficiency. Year in and year out we have been striving to improve, where possible, our almost perfect motors. Today we offer to you a Miller motor to meet your requirements, be it for a small boat, a heavy sea-going cruiser or work boat.

### Miller Engine Company

2329-2331 No. Tallman Ave. Chicago, Illinois  
*San Francisco Agents:* 2256 Greenwich St.  
 Burton Machine Works.  
*Agents for the North Pacific Coast:*  
 Pacific Marine Engine Co. 78 Marion St., Seattle, Wash.  
*Agents for the South and Gulf Coast Ports:*  
 Mingo Marine Hardware & Supply Co. New Orleans, La.  
 Parr-Leisbet Engine Corp. 380-384 Canal St., N. Y.

**TEN MODELS** Each one designed for a specific work, are at your service



Write us  
today for  
particulars



## BARKER MOTORS

Leaders in 2-cycle class for  
twenty years and still supreme in  
**Dependability Durability**  
**Simplicity Serviceability**

*"Imitated but Not Equalled"*

Moderate Price  
Conservative Ratings

DISTRIBUTED IN NEW YORK BY:  
TOPPING BROTHERS,  
122 Chambers Street.

IN MASSACHUSETTS BY:  
TOPPAN COMPANY,  
101 Haverhill Street, Boston.

Made by

**THE BARKER FACTORY**  
NORWALK, CONNECTICUT



THAT'S THE BOOK  
YOU NEED



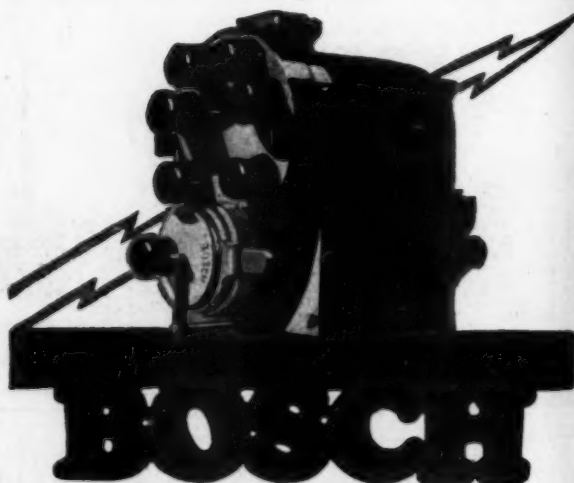
**GEO. B. CARPENTER & CO.'S**

**Marine Catalogue 1920**  
Edition, is now off the  
press. This is good  
news for sailors every-  
where. If you have not  
sent in your name and  
address for a copy, DO  
SO AT ONCE.

**GEO. B. CARPENTER & Co.**

**Complete Marine Equipment**

200 W. Austin Ave. Chicago, Ill.



OF course you want the exhilaration of  
passing the other fellow, and you'll  
always do it if you will put a Bosch High  
Tension Magneto on your engine. They  
are strong and dependable.

**American Bosch Magneto Corporation**

Main Office and Works—Springfield, Mass.  
Branches: New York, Chicago, Detroit, San Francisco

Be Satisfied

Specify Bosch

AMERICA'S SUPREME



IGNITION SYSTEM

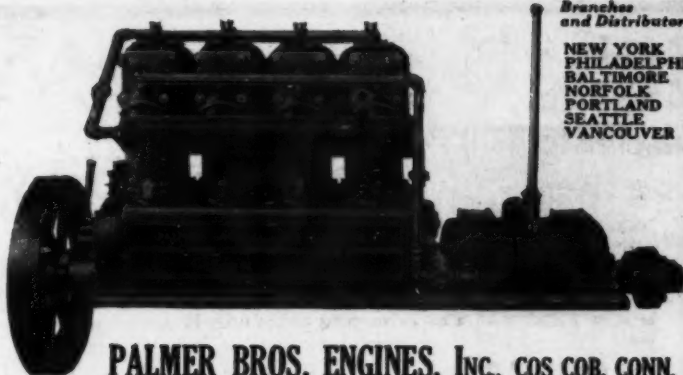


TRADE MARK REG. U.S. PAT. OFF.

FOUR CYCLE  
3½ H.P. to 80 H.P.  
One to Six CylindersTWO CYCLE  
2½ H.P. to 10 H.P.  
One and Two Cylinders

Palmer engines have been used extensively for twenty-five years in both pleasure and work boats.

Write for Catalogs



Branches and Distributors  
NEW YORK  
PHILADELPHIA  
BALTIMORE  
NORFOLK  
PORTLAND  
SEATTLE  
VANCOUVER

PALMER BROS. ENGINES, INC., COS COB, CONN.

The pleasures of boating enhanced by the feeling of Security one enjoys if your Craft is protected by  
**GOOD WOOLSEY PAINT and VARNISH—TOP and BOTTOM.**

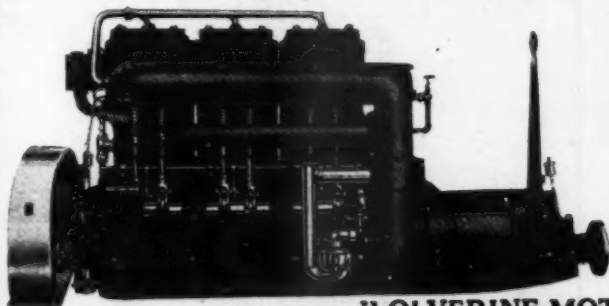
## WOOLSEY COPPER PAINTS AND

### MARINE PAINT SPECIALTIES ARE THE WORLD'S STANDARDS

Copper Paints—Brown, Red and Green, Yacht White, Deck Paint, Marine Mixed Paints, Metal Bottom Paint, Seam Paint, Seam Compounds, Sparon (Spar) Varnish, Engine Enamels, Canoe Enamels, Boat Bottom Seam Compound, Copper Bronze, Light Sea Green and Regatta Green Yacht Bottom Paints, etc.

**C. A. WOOLSEY PAINT & COLOR CO., Jersey City, N. J., U. S. A.**

Send for our Marine Booklets, Free—Contain Color Spots and information "How to Paint a Boat."



## "WOLVERINE"

The Motor with the Bore and Stroke

HEAVY DUTY MARINE ENGINES

KEROSENE

Used successfully  
for 15 years.  
Device built into  
engine.

WOLVERINE MOTOR WORKS

33 Union Ave.,

Bridgeport, Conn., U. S. A.

(Formerly Grand Rapids, Mich.)

Catalogue No. 113  
gives full information

## NILSON BUILT

means the highest quality of Workmanship and Finish. "Honest Boats—Honestly Built."

Let us figure with you.

The Nilson Yacht Building Co., Inc.  
Spring Garden Baltimore, Md.



## ZUNDEL

This 6-volt Marine Horn combines distinctive marine appearance with a coarse heavy tone. The horn is of the vibrator type, with a very small current consumption; non-arcing, black enamel face, highly polished brass projector for salt water use. 9" high, 4" wide at base, weighs 2¼ lbs. Price \$9.50



**Lebec Bronze Water Pumps**  
For pumping circulating water or bilge. Price \$12.00. Furnished with pulley and upright. \$14.00.

44 WHITEHALL STREET  
Phone: Bowling Green 9157 New York



**BOAT SUPPLIES**

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating



## # Stockless Navy Anchor

**T**AKES hold at the first pull on the cable, and the harder the pull the firmer it grips. Tripping fin on head absolutely prevents dragging flukes up. Has solid wrought iron shank that lies, in holding position, at angle of 55° to flukes as per Navy specifications. One piece head; no mud-gathering pockets. Heavily galvanized by hot process. Proper shackle furnished. At your dealer's, or write us.

**The Harder  
the Pull  
the Tighter  
the Grip.**

**Always look for the # mark.**  
*It means Service and Satisfaction.*

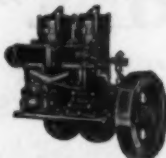
**GET THIS BOOK—"Sea Craft Suggestions and Supplies."** It tells all about Dependable Marine Hardware for motor boats and other small craft, and contains besides much valuable information on Mooring, proper Ground Tackle, Stern Bearings, Compass instructions, etc. Sent only on receipt of 30c.

**WILCOX, CRITTENDEN  
& CO., INC.**  
4 South Main Street  
Middletown, Conn.

**World's Largest  
Manufacturers  
of Marine Hardware.**  
Established 1847

## REX MARINE ENGINES

### TWO CYCLE TYPE



6 to 32 H.P.  
1 to 4 Cylinders

**Features**  
Two port or combination two and three port. For gasoline or kerosene fuel. Jump spark ignition. Water circulation through cored passages, thus eliminating many and troublesome pipe joints. Removable head. Large hand holes. Bearings for crank pin and main bearings of genuine babbit bushings, easily replaced. Bronze connecting rod. Heavy crankshaft, 1 1/2" in diameter.

By combining simplicity of design and quality in material, we aim to produce an engine to meet strict specifications and to give reliable service.

Expert Shipments  
Heavily Boxed  
and Strapped

**Neponset Engine & Machine Co.**  
Boston 22, Mass., U. S. A.

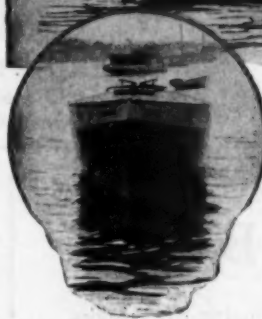
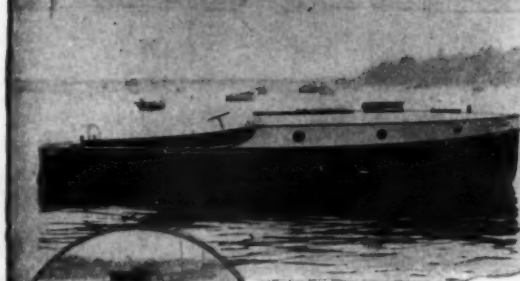
## DARROWS STEEL MOTORBOATS



A high grade guaranteed line of Light and Medium Duty pleasure and work boats. 4 Styles, over twenty sizes. *Speedy, shallow draft, flat bottom Riverboats a specialty.* Also Outboard Motorboats, Sectional boats, Rowboats, livery boats, duckboats and Canoes. Tenders and special designs.

**F. H. DARROW STEEL BOAT CO.**  
620 Erie Street ALBION, MICH.

## 27 Foot Cabin Cruiser



**We build all sizes and types, but have made a specialty of this design.**

**C**ONSTRUCTION and workmanship is the best—equal in every respect to the high class of yacht work on which our reputation has been based for over 20 years. The lines are very fast, the launch is safe and able in severe conditions of wind and sea, and it has a large cockpit and very comfortable accommodations below decks. It is equally adapted to day service or cruising.

**STEARNS & McKAY CO.**  
MARBLEHEAD, MASS., U. S. A.





## MASCO MOTOR WASTE

*The Best Motor Waste in the Handiest Form*

A selected waste, compressed in a strong cloth bag.

The ideal waste for motor boat users, automobilists, and for home engines and workshops.

The man with a motor is always sure of a clean fine waste—no odds and ends lying about. The bag, too, is useful.

**MASSASOIT MANUFACTURING COMPANY**  
FALL RIVER, MASS.

*Manufacturers of Masco Products*

MASCO MOTOR WASTE—DECK MOFFS—CLEANING AND POLISHING CLOTHS  
YACHT CAULKING AND PACKING

Ask your dealer for  
Masco Motor Waste in  
the 1-lb. cloth bag—or  
write us direct



Rochester 45-Foot Enclosed Bridge Cruiser.

## Rochester "Bilt-Rite" Cruisers

Rochester Cruisers are the embodiment of the highest standards in modern design, materials and workmanship.

One of our four standard sizes will interest you—36 ft.—40 ft.—45 ft. and 55 ft.

They are complete and up to the minute in every detail.

We will gladly send complete information.

**Rochester Boat Works, Inc.**

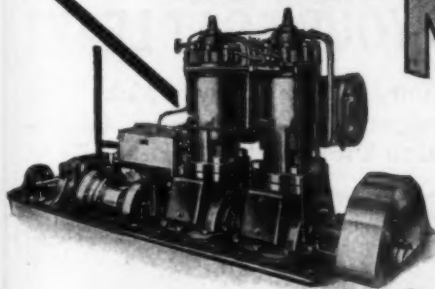
Charlotte Station : : Rochester, N. Y.

THE NEW

**MIANUS**  
MARINE MOTORS

**OIL ENGINE**

An Engine Combining the Diesel Principles of High-Compression Ignition with the Simplicity and Greater Advantages of a Swedish System of Fuel Injection.



**HIGHEST EFFICIENCY AND ECONOMY**—perfect combustion with no carbon, soot, smoke or odor. Guaranteed fuel consumption 6/10 pint per H. P. hour or better.

No electrical devices—no hot plates, tubes or torches. Easy, positive starting, quiet, vibrationless operation.

**SOLID FUEL INJECTION**—Avoids use of compressors and high pressure valves necessary in other types.

**RUNS PERFECTLY** at low speeds, load or no load, with perfect ignition and combustion.

**LARGE AND SMALL SIZES**—The only engine of the compression-ignition type made in the smaller sizes.

Ask for Bulletin "O"

**THE MIANUS MOTOR WORKS : : : Stamford, Conn., U. S. A.**

NEW YORK  
BOSTON

NORFOLK, VA.  
PORTLAND, ME.

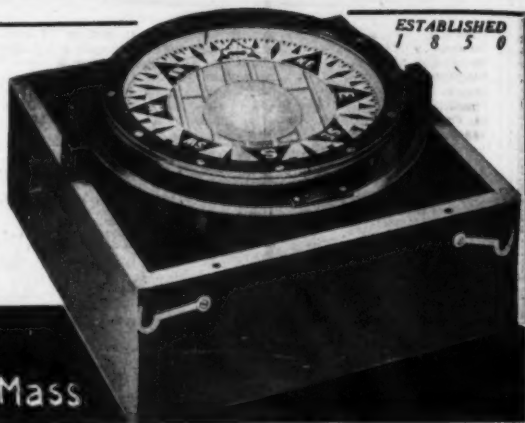
BALTIMORE  
HARTFORD, ME.

## RITCHIE

*For Seventy Years Ritchie Instruments have been the recognized Leaders in the Nautical Field*

Your runabout cruiser or yacht is not properly equipped until Ritchie Instruments are installed. Flat Card Compass, illustrated, has great magnetic force, making the compass much easier to adjust in iron ships. 2 in. to 10 in.

Write today for your copy of our catalog. It contains the compass best suited for your boat.



**E. S. RITCHIE & SONS**

110 Cypress St.

Brookline, Mass.

When writing to advertisers please mention **MOTOR BOATING**, the National Magazine of Motor Boating

**SAVE**  
TIME LABOR MONEY  
BY USING A  
**CRANE PULLER**

Built for  
SERVICE

Guaranteed  
for LIFE



Patented Feb. 1, 1916

**LATEST MODEL CRANE PULLER  
WITH LOCKING ARMS**

Write for Our New Catalog  
ORDER FROM YOUR DEALER

**CRANE PULLER COMPANY**

54 Lake Street,

Arlington, Mass.

**CARLISLE & FINCH  
ELECTRIC SEARCHLIGHTS**



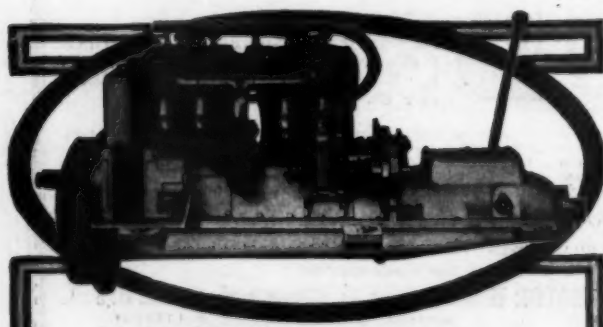
have for years been the choice of careful motor boat and ship owners. Made in all diameters, from 7" to 60". Used on every size craft from motor boat and yacht to battleship and ocean liner.

*The Carlisle & Finch catalog of searchlights will be mailed to any boat owner, builder and marine architect on request*

**THE CARLISLE & FINCH COMPANY**

261 East Clifton Ave.

Cincinnati, Ohio



**Wisconsin**

Cruising pleasure is not complete without that feeling of confidence in the dependability of your engine, inspired by the knowledge that your motor boat is Wisconsin powered. Surplus power and endurance assure you of easier speed even under the most trying conditions. Wisconsin Motors cost more because of the extra care taken in their manufacture. Each one is run-in, torn down and rigidly inspected before it is re-assembled. Write for specifications.

**WISCONSIN MOTOR MFG. CO.**

Sta. A, Dept. 302 Milwaukee, Wis.

DISTRIBUTORS:

New York Branch: T. M. Fenner, Factory Representative, 31 Park Row.

New York, N. Y.

California Distributor: Earl P. Cooper Co., Los Angeles, Cal.

Northwest Distributor: Chandler-Dunlap Co., Seattle, Wash.



**DOES YOUR BOAT LEAK?**

Send for our Booklets "How to Make Your Boat Leakproof" and "Marine Glue—What to Use and How to Use It."



Any old boat, so long as the frames are in fair condition, can be made water-tight by following the instructions in the above booklets. This applies to any-



thing that floats, from a canoe to a yacht—wood or steel.

Put your leak troubles up to us and we will help you to stop them.

For more than 75 years Jeffery's Marine Glue has been the choice of the foremost boat builders of the world. Jeffery's is a product that has not varied from the strict line of quality—it is not a competitive commodity made to meet a price.

**JEFFERY'S WATER-PROOF MARINE GLUE  
IN ALL THE VARIOUS GRADES**

For sale by all Yacht, Boat and Canoe Supply Houses; Hardware, Paint and Oil and Sporting Goods Dealers.

**L. W. FERDINAND & CO.**

152 Kneeland Street

Boston, Mass.

# Mathis-Built Houseboats



## Northward with the Birds

come many notable Mathis-Built Houseboats—displaying the same remarkable seaworthiness which they showed earlier in the year, when Florida-bound through ice floes and winter storms.

This Mathis-Built Florida fleet—the feature of the Southern Season—includes the new type 1920 Houseboats, particularly 52-ft. and 80-ft. sizes, in addition to twenty or thirty notable earlier built Mathis Houseboats.

### From the Gulf to the Pine Tree State

all Summer long, Mathis-Built Houseboats will demonstrate their ability to go anywhere, taking with them—wherever they go—perfect comfort and cruising pleasures provided by no other type of craft.

This Spring and Summer, wherever yachtsmen seek comfort, pleasure and cruising economy, you will find Mathis-Built Houseboats in the fore.

Shall we tell you why?

## MATHIS YACHT BUILDING CO.

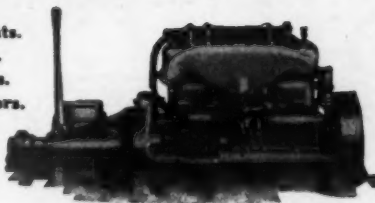
COOPER'S POINT

*Specialists in Houseboats and Cruisers from 40 to 120 feet*

CAMDEN, N. J.

## G.H. MASTEN CO., Inc.

Eastern and Export Agents.  
Vulcan Marine Engines.  
Caille Perfection Motors.  
Wisconsin Outboard Motors.



Manufacturers of Motor Boat Tops, Spray Hoods,  
Life Rafts, Life Preserver Cushions, etc.

Write for Catalogue Today.

### OBEY THE LAW!

Masten Reversible Life Preservers make this possible. The best produced, with our guarantee of satisfaction or your money back.

Masten Life Preservers for rivers and harbors are of Masten standard and most economical in price.



## Motor Boats, Motors, Marine Accessories and Supplies

### Swim with the "Liberty" Swimming Belt

Learn to swim in half an hour. Just make the strokes,—the "Liberty" will hold you up. They make a beginner a swimmer — a swimmer an expert.

YOUR DEALER CARRIES MASTEN EQUIPMENT.

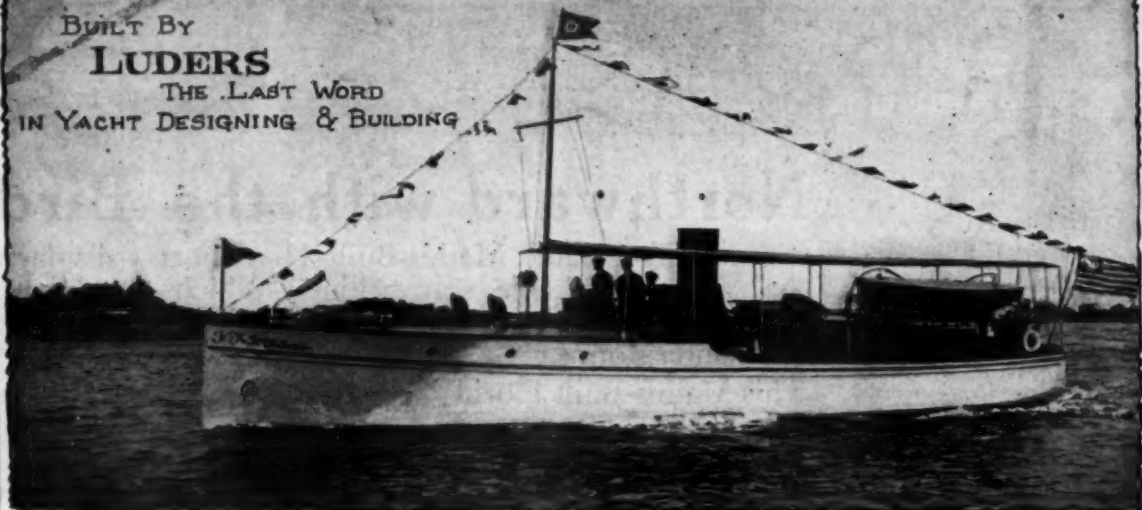
Your Dealer will Supply You. \$2.00 by Mail.



G. H. MASTEN COMPANY, Inc., New York City  
Display Showroom, 38 East 9th Street, 1/2 block West of Wanamaker's



BUILT BY  
**LUDERS**  
THE LAST WORD  
IN YACHT DESIGNING & BUILDING



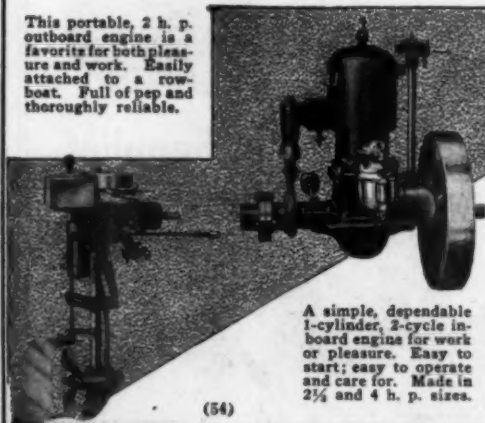
—FOR EARLY DELIVERY—  
60 FOOT TWIN SCREW CRUISER NOW BUILDING  
**LUDERS MARINE CONSTRUCTION COMPANY,**  
50 MINUTES FROM  
GRAND CENTRAL  
STATION. **STAMFORD,**  
**CONN.**

## One of These Will Meet Your Needs

Somewhere in the line of Lockwood-Ash Marine Engines is one that will meet your needs.

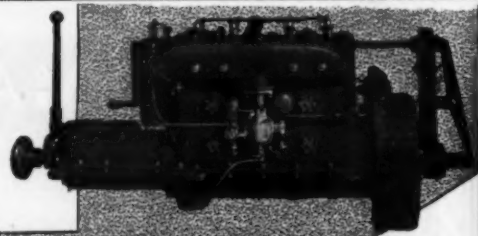
From the clean-cut, sturdy 2 h.p. outboard engine to the big four-cylinder power plant are varieties in size to cover a wide range of power and speed requirements.

This portable, 2 h. p. outboard engine is a favorite for both pleasure and work. Easily attached to a row-boat. Full of pep and thoroughly reliable.



A simple, dependable 1-cylinder, 2-cycle inboard engine for work or pleasure. Easy to start; easy to operate and care for. Made in 2½ and 4 h. p. sizes.

Big brother of the Lockwood-Ash Engine family, a highly developed 4-cylinder, 4-cycle marine power plant. Rugged and dependable. Delivers up to 20 h. p. Built with or without rear starter.



Why  
**Lockwood-Ash**  
Engines are Worthy  
of Your Choice

Lockwood-Ash Marine Engines are products of an institution which always has placed quality first. Experience has pointed out the sizes that make up the well-selected line, and the quality standard has dictated the thorough workmanship which is in every Lockwood-Ash Engine. Ask for the booklet that tells all about Lockwood-Ash Engines. Also ask about the 30-day trial plan.

A light, compact 2-cylinder, 2-cycle all-purpose engine, of few parts and readily accessible. Made in three sizes, 6, 8 and 12 h. p. The largest size should deliver up to 15 miles per hour.

LOCKWOOD-ASH MOTOR CO., 2007 Jackson St., Jackson, Mich

**LOCKWOOD-ASH**  
MARINE ENGINES

(54)



Unit Power Plant Model "F" THOROBRED  
25-36 H.P. 4 1/16 x 5"  
Furnished with or without Unit Power Plant

**Red Wing Thorobred**  
THE MOTOR WITH POWER TO SPARE

## The World Do Move

Science hadn't developed a motor like the THOROBRED ten years ago, but imagine what it would have cost then,

had it been obtainable. With methods then in vogue a THOROBRED could not have been produced and sold under \$1,500.00.

It's worth that much today, but with our immense production and world-wide distribution we are able to offer THOROBREDS at prices that put Perfect Service within the reach of every man who owns or wants a motor boat.

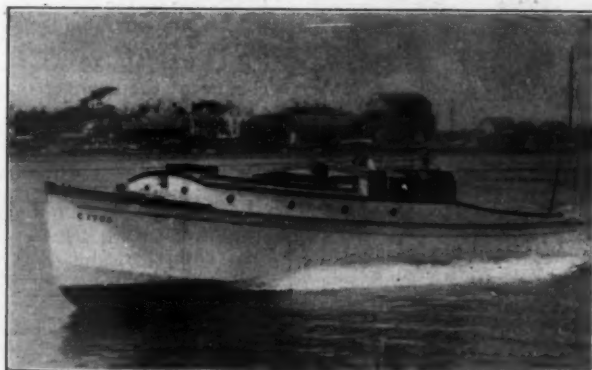
Ask your boat builder about the THOROBRED—he knows.

We'll be glad to mail you all the details if you'll drop us a line. Five sizes to fit any reasonable requirements, 10 to 40 H.P. They burn either kerosene or gasoline.

**Red Wing Motor Co., Dept. B, Red Wing, Minn., U. S. A.**

*My Catalog Will Prove Interesting to All Who  
Like Motor Boats. Send Stamp for 1920 Issue of*

## HAND-V-BOTTOM MOTOR BOAT DESIGNS



I have one of these splendid 35-ft. day-cruisers ready for immediate delivery.  
Motor 6-cyl. 150 H.P. Van Blerck. Speed 25 ms. Price \$7000. No tax.

**WILLIAM H. HAND, Jr. - Naval Architect - New Bedford, Mass.**

**Points True!**



As your compass guides you  
Safely to port, so the  
guides you to Dependable Motor  
Boat Fittings. The

**Oil Compass**

is constructed on scientific principles by skillful workmen. Its action, accuracy and steadiness are guaranteed under all conditions. Built to withstand the jars of power craft, the dial is adjusted to remain steady in a sea way and responds quickly to a change in direction. Every Compass carefully tested before shipping. 2, 2½, 3, 4 and 5 inch dials. At your dealer's or write us.

Send 30c in stamps for celluloid Course Protractor, "Compass Talks and Tests" sent free. Tells how to box the compass, contains deviation tables, and other practical information for compass users.

**WILCOX, CRITTENDEN & CO., Inc.**  
4 South Main Street,  
Middletown, Conn.



**YALE**

**Testing a One-Ton Yale Spur-Gear Chain Block**

*Safety is Certified in Every Yale Chain Block*

**EACH** Yale Chain Block must lift a test load 50% over its rated capacity before it can leave the factory.

That means certified safety, safety that warrants confidence in the Yale Chain Block as the safest block for every hoisting need.

For complete information regarding the Yale Spur-Gear Block, Yale Screw-Gear Block, Yale Differential Chain Block, and Electric Hoists, ask for our new 19D catalog.

*For a factory locking system use the Yale Masterkey System*  
Write for particulars

**The Yale & Towne Mfg. Company**  
*Makers of the Yale Locks*  
Stamford, Conn.



## When the Chasers Worked

(Continued from page 8)

drove her at a lively clip, was not suitable for venturing out of the harbor on a rough day. Moreover, her engineer, as I learned subsequently from our own men, loved a lass who lived in Taranto, a naval port only fifty miles away, but a day's run by train. When the agony of separation from his love became unbearable, this accomplished Wop demolished a vital part on one of the engines and secured permission to go to the navy yard at Taranto to replace it. This excusable but distressing weakness of the engineer reduced the operating efficiency of the motoscafa to an alarming extent and was instrumental in bringing the 131 to Gallipoli.

The advantage of wireless equipment on a motor boat was never better demonstrated than in this quasi-commercial service to which our chaser was put after the war. We were equipped with a ½ KW set which gave us only a fifty-mile sending radius under normal circumstances; but we were capable of receiving from weak stations 200 miles distant and from more powerful ones upwards of 500 miles. By a special hook-up of the audion bulbs of our telephone installation, which the radio men devised, we were even enabled to receive the nightly time tick from Eiffel Tower, across nearly 1,000 miles of continent.

Although we were usually advised by telegraph of the expected arrival of an American ship from Gibraltar or Trieste, we had little reason to place our reliance in the Italian land wires and maintained a continuous radio watch, on more than one occasion picking up messages from unreported ships bound in our direction. Sometimes, when one was still a day's run west of Messina, we could hear her calling: "S. C. 131 or any American chaser de S. S. Blank: Have you anything for me?" Then, receiving no response from us—for she was hundreds of miles outside our sending radius, she would call, "Any American ship de S. S. Blank: Is there a subchaser at Messina?" And occasionally from a west-bound ship that had already passed through our hands we would pick up the reply, "There is a subchaser at Gallipoli. Call her when you reach Spartivento."

Cape Spartivento was the point upon which we based our plans for meeting ships bound for Trieste. If, upon arriving abreast that cape, one radioed her course and speed, we, although still unable to reply, could estimate at what hour to meet her and arrange accordingly our reception of any other ship that might be headed our way. Then when she had had time to come within fifty miles of Gallipoli we called, asking her position, course and speed, and directed her to meet us so many miles off Cape di Leuca.

Indispensable though the radio was in arranging the meeting place between a strange vessel and ourselves, it was of even greater value when upon reaching the rendezvous we failed to pick up the smoke of the stranger by day or her masthead light at night. For then we would send into the ether a message which gave our position—either by latitude and longitude or by our bearing and distance from the lighthouse on the cape—and soon receive in reply the information that the approaching ship had picked up the light and bore so many degrees from it at a distance of so many miles. With this knowledge we were at liberty to await the coming of the stranger or proceed to meet her as circumstances warranted. Not once did we miss a rendezvous, although we were obliged at times to choose among several ships visible on the horizon. In such a contingency we again had recourse to the radio and learned in answer to our query that the chaser bore at such an angle from the American ship. Reversing the angle by a glance at our compass we thus identified the stranger.

So natural was the use of the radio in such circumstances, and so much did it simplify the duty of meeting ships that we thought no more of it than a man does of his sight when he has it. But one day, when the chaser was engaged in other duty, it became necessary to borrow from the Italians their motoscafa and put out a few miles to meet a homeward-bound vessel and disembark her pilot. Before setting out in the motoscafa we had arranged by wireless that this vessel was to proceed northward and westward of di Leuca until she had the lighthouse at Gallipoli on a certain bearing and then to change course and steam up a swept channel on that bearing. The instructions were sim-

(Continued on page 86)



# OBERDORFER PUMPS



**TYPE-A  
FORM-Y**

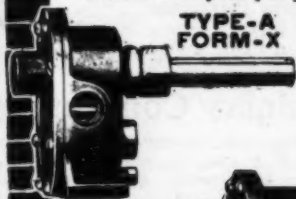


**TYPE-C  
FORM-Y**

The finest power plant made will not operate properly if it is equipped with an inferior pump, whether it supplies water, fuel or oil.

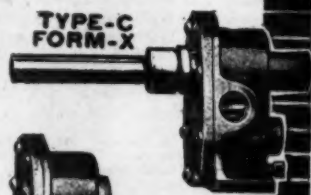
## OBERDORFER BRONZE GEARED PUMPS

are built especially for marine use—they are made to withstand the hard service encountered in use on board boat—Oberdorfer Bronze Geared Pumps are noiseless, automatic, compact and reliable. The supply of water, fuel or oil is governed entirely by the motor—there is never an over or under supply. If you have ever had trouble with your pump you will find a world of satisfaction in the trouble-proof Oberdorfer.



**TYPE-A  
FORM-X**

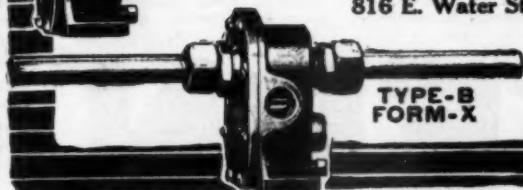
If you own a boat powered with an internal combustion engine you will be interested in our new book on pumps. Your copy is ready for you—it comes free on your request.



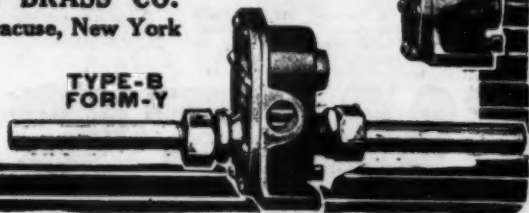
**TYPE-C  
FORM-X**

## M. L. OBERDORFER BRASS CO.

816 E. Water St. Syracuse, New York



**TYPE-B  
FORM-X**



**TYPE-B  
FORM-Y**



## What is the "Efficiency" Motor Temperature?

Few motor boat owners realize the enormous waste of fuel that is caused by the idea that a motor ought to run "nice and cool." The cooler the motor, the more gasoline is unburned and therefore wasted.

But the other extreme of great heat causes scored cylinders, pre-ignition and other engine troubles. Only by the use of the Boyce Moto-Meter can you watch your temperature so as to obtain greatest efficiency.



Handsomely finished in black enamel and nickel beveled crystal and black dial with white figures. List price \$18.00 with 5 ft. of tubing.

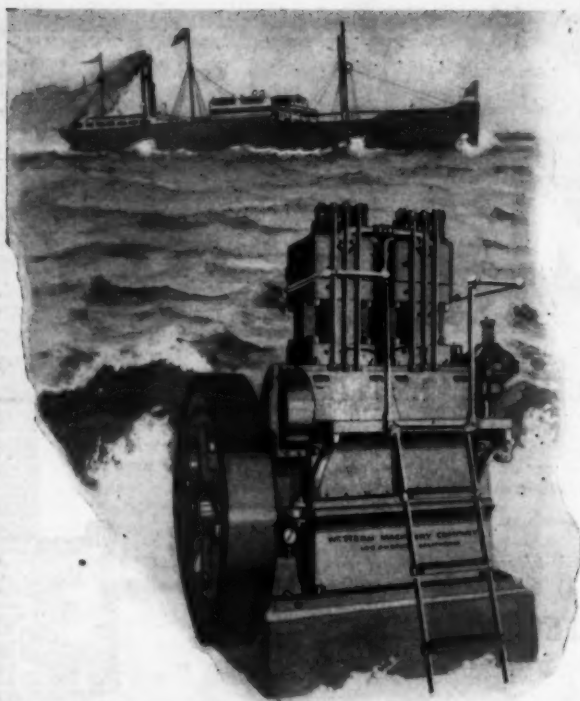
**THE MOTO-METER CO., INC.**  
Long Island City, N. Y.

**BOYCE  
MOTO-METER**

Send for our Booklet,  
"Marine Engine Efficiency"  
by Gerald Taylor White.



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating



## *Simplicity*

## *Efficiency*

## *Dependability*

These three features which have made for "Western" supremacy on land, are vitally essential to the power equipment for sea going vessels.

The "Western" Diesel Engine unquestionably is the simplest engine ever built of the Diesel or heavy oil type and embodies every feature that possibly can be desired in engines of this character without any of the undesirable mechanical or constructional complications found in others.

### **For Auxiliary Purposes**

Built in sizes of 25 B.H.P. per working cylinder in single and multiple cylinder units. Send for descriptive Bulletin No. 528.

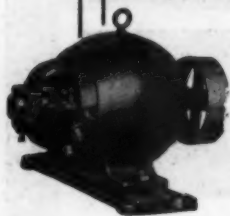
### **Western Machinery Company**

General Offices and Factory

928 No. Main St.  
Branch: Rialto Bldg.

Los Angeles, Calif., U. S. A.  
San Francisco, Calif., U. S. A.

# "WESTERN"



## *Let Us Light Your Boat*

Whether it's a runabout, cruiser, yacht or commercial boat, we have the ideal lighting and ignition system for you. A proven product of 15 years' actual use by the Motor Boat Trade.

## "DAYTON" MOTOR BOAT LIGHTING AND IGNITION SYSTEMS

Made up in combinations of Dynamo, Battery and Switchboard for water craft of every description.

6 - 12 - 32 Volts

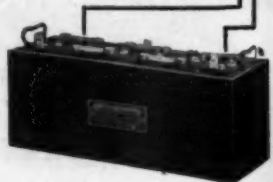
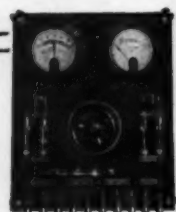
4 to 40 Lights

*Catalog upon request.*

**THE A-C ELECTRICAL MFG. CO.**

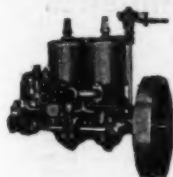
DAYTON

OHIO, U. S. A.



# Waterman

Waterman QUALITY Motors are built lighter with aluminum crank cases and copper jackets; they are good for a longer life of service than most other motors in their class—and better service, too.



K-2, 5-6 H.P., 60 lb.

Their appealing features have put them in hundreds of boats, their remarkable power, stamina and reliability are factors which have made WATERMAN Motors the most popular in their special fields of operation.

Write us for catalog which describes in detail each motor in the Waterman Line.

**ARROW MOTOR & MACHINE COMPANY**

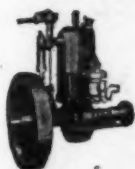
Newark, N. J.

J. E. SITTERLY

Foreign Sales Manager

47 Broadway

New York



R-4, 111 lb., 5-6 H.P.



C-10, 3 H.P., 68 lb.



K-1, 2½ H.P., 36 lb.



provides two speeds forward—two reverse and neutral. Equipped with starting device—no cranking. Magneto built in flywheel. Water-cooled exhaust.

Ask for catalog.

## Fishing Without Rowing

No more blistered hands—no more aching arms and back—no more tugging away at oars and paddles. Rowing—the biggest joy-killer that ever tagged a fisherman is banished by the use of a

### Liberty Drive ROWBOAT MOTOR

attached to the stern of your rowboat. Clamps on in a jiffy. Has weedless propeller. Pivots on stern of boat and automatically rises over obstructions. Weighs 72 pounds. Will drive boat 2 to 9 miles an hour. Send for catalog.

Some excellent territory still open for dealers.

Write us.

**THE CAILLE PERFECTION MOTOR COMPANY**

45 Caille Building

Detroit, Michigan

**\$65.00**

Magneto  
Ignition  
\$20 Extra



When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating



# GRAY-ALDRICH COMPANY, Inc.

**Marine and Stationary Gasoline and Oil Engines**

Van Blerck, Lathrop, Wolverine, Fairbanks-Morse and Palmer

**Marine Winch Hoists and Power Windlass Attachments**

Complete installations of any size up to 600 H.P.

## A FEW GUARANTEED REBUILT ENGINES

List No.			List No.		
232	24 H.P. Fairbanks Morse type "G" 2 cyl., new.....	\$300.00	269	4 1/2 H.P. Lathrop, 1 cyl.....	\$75.00
233	12 H.P. Teale, 2 cyl.....	150.00	271	8 H.P. Fairbanks Morse type "T" special electric vertical stationary, kerosene.....	425.00
234	32 H.P. Lathrop, 4 cyl., 4 cycle.....	800.00	272	6 H.P. Lathrop, standard model.....	150.00
235	36 H.P. Lathrop, 3 cyl., 3 cycle.....	800.00	274	42 H.P. Wolverine, 3 cyl., 4 cycle.....	700.00
236	6 H.P. Stanley, 2 cyl.....	100.00	275	42 H.P. Wolverine, 3 cyl., 4 cycle.....	700.00
237	14 H.P. Wolverine and reverse gear, 2 cyl., 4 cycle.....	400.00	277	16 H.P. Lathrop, 2 cyl., 2 cycle.....	235.00
238	24 H.P. Lathrop, 2 cyl., 2 cycle.....	350.00	279	10 H.P. Lathrop, 2 cyl., 2 cycle, new.....	200.00
239	24 H.P. Lathrop, 2 cyl., 3 cycle.....	425.00	280	6 H.P. Palmer, 1 cyl., 2 cycle, new.....	180.00
240	24 H.P. Lathrop, 2 cyl., 3 cycle.....	400.00	281	10 H.P. Palmer, 2 cyl., 2 cycle, model P-1, new.....	250.00
242	12 H.P. Fairbanks Morse type "T" special electric stationary engine, kerosene.....	650.00	282	8 H.P. Palmer, 2 cyl., 2 cycle, model S-2, new, with clutch.....	320.00
243	5 H.P. Stanley, 2 cyl.....	80.00	283	8 H.P. Palmer, 2 cyl., 2 cycle, model Q-3, new.....	140.00
244	14 H.P. Lathrop, 2 cyl., 2 cycle.....	275.00	284	12 H.P. Palmer, 4 cycle, 2 cyl., model NR-2, with clutch.....	400.00
245	7 H.P. Mianus, 1 cyl.....	85.00	285	50 H.P. Hitchcock, 4 cyl., with magneto.....	750.00
246	6 H.P. Brown Stationary.....	125.00	286	4 H.P. Bulldog Hoist, nearly new.....	175.00
247	2 H.P. Type "T" Fairbanks Morse Stationary.....	42.00			
248	2 H.P. Type "T" Fairbanks Morse Stationary.....	47.00			

**Office and Showrooms:**

**82-86 ATLANTIC AVE., BOSTON, MASS.**

Two minutes from foot of State St. Tunnel or Elevated Station



## THE JOHNSON MARINE REVERSE GEAR

### A Fine Gear for Fine Motors

The Johnson Marine Reverse Gear for 1920 will maintain the same distinctive qualities that have made it the favorite of boating enthusiasts the world over. With improved manufacturing facilities we hope to meet the demands of fine motor users for truly appropriate reverse gears.

Johnson Gears are made in five practical sizes, for light and medium powered motors. In material and workmanship, they represent the very best that can be obtained. If you want good equipment for your boat, be sure to include a Johnson Gear.



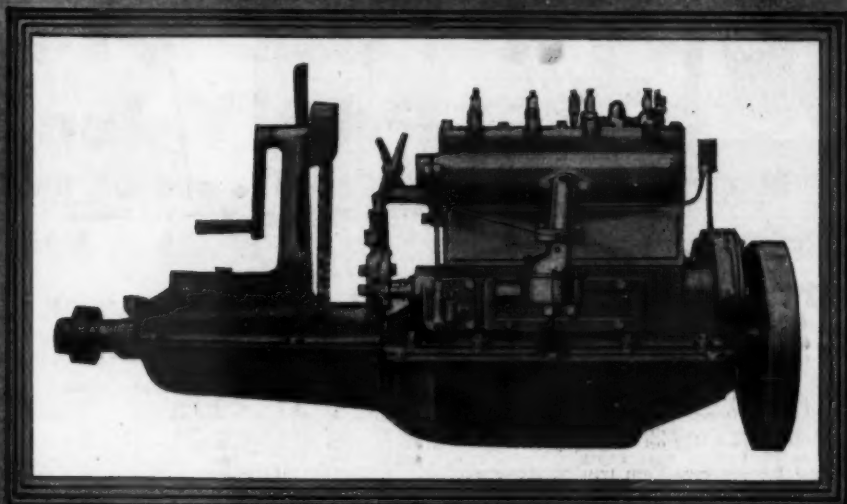
#### Exclusive Johnson Features

Special hardened alloy steel in all gears and shafting. The well-known Johnson Friction Clutch on both forward and reverse drives.

Radial and thrust ball bearings incorporated in the gear itself. The whole completely enclosed in an oil-tight case.

Write Department 25 for full particulars.

**THE CARLYLE JOHNSON MACHINE CO. MANCHESTER, ENGL.**



THE WORLD'S STANDARD SMALL MOTOR

*Universal*  
**MOTOR**

As nearly perfect as it is possible to build a motor, the Universal will bring you pleasure and satisfaction heretofore unknown to motor boatmen.

Let us tell you all about it in our Latest Bulletin No. 29.

**UNIVERSAL MOTOR COMPANY**

**OSHKOSH**

**WISCONSIN**



**Here's Where the Doman Saves You Money**

When you fill the fuel tank in your boat it makes a lot of difference to your pocket book whether you use kerosene or gasoline.

Your Doman saves you money. Its special Holley-Doman carburetion system—entirely different from a "hot spot" or jacketed manifold—thoroughly vaporizes heavy kerosene, producing full power without excessive carbon or smoke.

Write for Doman Specifications before you buy a new boat or re-engine your old one.

**THE H. C. DOMAN COMPANY**  
Station 810 Oshkosh, Wisconsin

**DOMAN**  
OSHKOSH, WIS.

**DUNN FOUR CYCLE MARINE MOTORS**

1920 Models—Kerosene or Gasoline

*Our Prices Speak for Themselves*

IF you want a reliable economical motor at the lowest possible cost you should own a Dunn Motor. Compare the prices of Dunn Motors quoted on this page with the prices of any other motors in the market. Then write us for full information about the design features of Dunn Motors and how they are built.

Remember all Dunn models are four cycle type, of up-to-date design. Special attention has been given to easy starting and accessibility for easy repair and replacement.

At the prices given, each motor is furnished complete with suitable propeller, shaft, couplings, coil, spark-plugs, mixing-valve and oil-cups.

Customers abroad—Add 10% to prices given to cover cost of boxing thoroughly for export and delivering F. O. B. Steamer New York City.

*Write today for our new 1920 catalog.*

**DUNN MOTOR WORKS**  
OGDENSBURG  
NEW YORK  
U. S. A.

**Single Cylinder**  
2 H.P. \$42.50

Bore—3 1/4"  
Stroke—4"

**2 Cyl., 4 H.P.**  
Bore—3 1/4"  
Stroke—4"  
Price \$75.00

**2 Cyl., 6 H.P.**  
Bore—4 1/4"  
Stroke—5"  
Price \$125.00

**3 Cyl., 6 H.P.**  
Bore—3 1/4", Stroke—4"  
Price \$100.00

**3 Cyl., 12 H.P.**  
Bore—4 1/4", Stroke—5"  
Price \$150.00

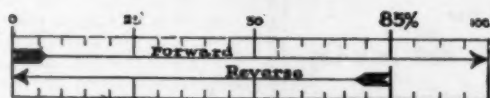
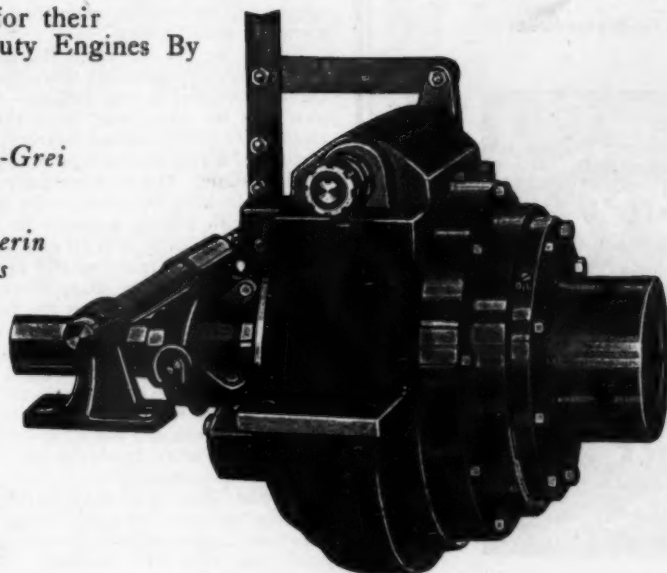
**4 Cyl., 16 H.P.**  
\$175.00

Bore—4 1/4"  
Stroke—5"



Selected for their  
Heavy Duty Engines By

*Nelseco  
Midwest  
Gulowsen-Grei  
Mianus  
Clay  
Venn-Severin  
and others*



**85% REVERSE RATIO**

**M**ANUFACTURERS of Diesel and Semi-Diesel engines are equipping with *JOES HUSKY GEARS* because of its greater strength and durability and because of its 85% Reverse Speed Ratio.

## JOES HUSKY GEAR

Joes Husky, Joes Duplex Drive and Joes High Power Gears meet every requirement, from heavy work boat to swift racer. All types are made with the highest reverse speed ratio consistent with the work for which they are intended.

We also make Joes Safety Rear Starter and One-Way Clutches.

*Send for Joes Catalog*

**The Snow & Petrelli Manufacturing Co.**

**156-B Brewery Street, New Haven, Conn.**

AGENTS: Sutter Bros., 44 Third Ave., New York City, Service Station Foot of East 92nd St., Brooklyn, N. Y.; Pacific Marine Engine Co., Seattle, Wash.; W. E. Gochenaur Mfg. Co., 631 Arch St., Philadelphia, Pa.; A. R. Williams Machinery Co., Toronto; The Pike Motor & Yacht Co., Montreal; J. King & Co., 10 Church Row, Limehouse, E. London, England; Arendahl Motor & Machine Co., Arendahl, Norway.

## CUT RATE MARINE SUPPLY HOUSE

Everything for Motor Boats



Catalogue Mailed free

E. J. WILLIS CO. 85 Chamber St. New York City



### ARE YOUR DECKS WATER TIGHT?

If not, they can be made so by using Elastic Seam Composition. This material remains elastic and flexible, adhering to the sides of the seams and yielding to the swelling and shrinking of same. It will last from eight to twelve years, keeping the decks tight and wearing down with the planking.

We will be pleased to submit estimate for caulking and filling of decks while the vessel is in the port of New York, guaranteeing same for a period of two years.

**ELASTIC COMPOSITION AND  
REPAIR CO.**

6411-23 Third Av.

Brooklyn, N. Y.

## When the Chasers Worked

(Continued from page 78)

ple, the time of her expected arrival accurate to a few minutes, and there seemed to be no obstacle to a prompt and successful rendezvous, even though the motoscafa was unequipped with wireless.

But as we set out from the harbor in the little Italian motor boat I ascertained that one of the essentials of successful navigation was lacking—the scooter had no compass. As we bore away from the lighthouse on what we assumed to be the correct bearing, I learned that one of the factors of a rendezvous was lacking—the food ship was behind schedule. And coincidentally I discovered that without wireless, looking for a ship in the open sea is difficult by comparison with finding a needle in a haystack. Nevertheless we bore confidently into an empty horizon at a twenty-mile clip and expected momentarily to pick up a telltale wisp of smoke. Nor were we disappointed. In a few minutes we saw not only the smoke but the funnel of a steamer distant about ten miles. Estimating its bearing from the lighthouse, which was still visible behind us, we concluded that the ship was not in the swept channel, but as we knew by this time the habits of American merchants skippers we sped on, expecting to find our ship proceeding on a course of her own choosing. About the same time we picked up to the northward of us what appeared to be the three stacks of a small British cruiser; but as the visibility was bad against the Italian shore we could not identify her with certainty.

In the course of an hour, during the latter part of which it became increasingly evident that we were embarked on a wild-goose chase, we overtook our ship to learn that she was an ex-Austrian, flying the Allied shipping flag and bound for Taranto. No, said her commander in response to a question from an Italian officer in our party, he had not seen the American *piroscafa*. Could he have permission to proceed? He could, and did; and we, getting a bearing on the sinking sun, turned about and headed for the lighthouse which had long since sunk below the horizon. Except for an offshore breeze that had sprung up, saturating everything from stem to stern, and for the fact that one of the motors had heated up and gone out of commission, and that we were threatened with a shortage of gasoline, and that the other motor was acting badly, we had all the makings for a very pleasant afternoon on that scooter. It's always a treat to a naval man to spend a day on the water in a compassless peanut.

By swinging northward on our return trip we overtook the British three-stacker which we had observed slowly threading the coastal channel through the mine field, and as we drew near we were a trifle surprised to see two of the stacks transform themselves into cargo derricks. A few minutes later the American flag whipped out from her staff, and we recognized the vessel for which we had been searching. Hours before she had seen us putting out to sea, but had been unable to call us except by wireless—and that we didn't have.

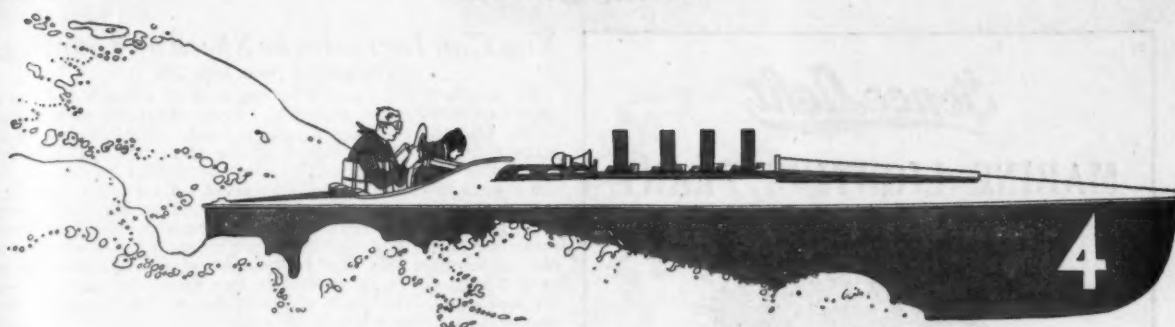
## Locker Tops for Berths

(Continued from page 25)

lockers, and put three brass hinges on each. I then made three oak strips 2 inches wide and 1½ inches thick, each long enough to go between the lockers, one on each end, and one in the middle, and cut down pockets in the sides of the lockers, so that the top of the strips would be flush with the top of the sides of the lockers; now by just opening up the second top of each locker two berths were made, each 3 feet wide by 6 feet long.

As I could not have cushions made to suit me for the opening and closing of these berths, I bought a good heavy comfortable in a department store, and cut it so that it would cover the berth when open, and (by having three small pieces of tape sewed on each side) could double it when we closed the berths and tie them together, making a fine soft covering for the lockers.

While we could not walk between the berths when open, they served their purpose, and could be opened or closed in a couple of minutes, and the small strips were carried in the lockers. Try this method on a small boat and your sleeping problem will be solved. C. G., Baltimore, Md.



## Murray & Tregurtha Engines are equipped with Rajah Spark Plugs

The selection of the Rajah Plug by the builders of Murray & Tregurtha engines is but another proof of Rajah excellence.

Every boat owner knows the standing of this engine and the opinion of its builders regarding spark plugs is significant.



Rajahs have always been the choice where the utmost is demanded of a plug—on land, in the air, and on the water. While your demands on your engine may not be so exacting, you do want the service, the power and the economy that an efficient and consistent spark plug will give.

*If Rajah plugs are not sold near you, send us your dealer's name.*

*We will supply you direct at these prices:*

Standard Rajah Plug \$1.00    Giant Rajah Plug \$1.25    Waterproof Rajah Plug \$1.50

# RAJAH

## SPARK PLUGS

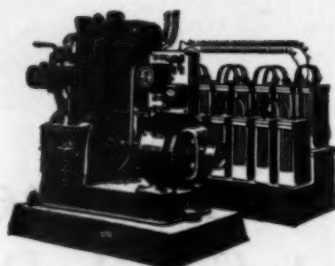
Manufactured by Rajah Auto-Supply Co., Bloomfield, N. J.

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating



# Genco Light

## MARINE LIGHTING PLANT



**T**HE more you know about the fine points of electrical construction, the more will you appreciate the superiority of the Genco-Light Marine Plant. Built in 32 and 110-volt sizes up to 6 K-W, complete with battery, and suitable for every light and power service, afloat and ashore.

Live Dealers and Agents Wanted

**GENERAL GAS-ELECTRIC CO.**

Manufacturers

Hanover, Pa.

C. W. Dean, Marine Distributor, Norfolk, Va.  
P. O. Box 863

Office: 417 William Street

## Indicates Positive Working Condition of SPARK PLUGS



Every Boat Owner and Repair Man Should Have One—**SAVES TIME, MAINTENANCE and UPKEEP COSTS**—Exceptional Opportunity for Dealers.

ORDER ONE TODAY

FLASH-O-LIGHT CORP.  
Box 4, Times Square Post Office  
New York, N. Y.

Enclosed find \$3.00 for one Flash-O-Light Spark Plug Tester.

Name .....

Address .....



## You Can Increase the Speed of Your Boat

(Continued from page 28)

To twist a blade, clamp it on the edge of a bench and use a crow-bar through the shaft-hole. Bring the twist at the root of the blade by clamping it near the hub. Bend the blades to make them straight or radial, at the same time. The blades are dished with a hammer. Carry the dishing as far as you can toward the hub. Test the blades again for angle, and then smooth the surfaces and sharpen the edges by filing or buffing.

To find the pitch, draw a base line equal in length to three times the propeller's diameter. Set up the pitch angle at one end of the base line, and continue it with a straight-edge to meet a squared or perpendicular line from the other end of the base line. The pitch will be equal to the length of this squared side of the triangle. If this triangle is laid off on paper and cut out, it can be bent around the propeller to complete the idea of pitch.

Give your boat a run with the tuned-up propeller, and you will find that the thumping and vibration aft have ceased; the whole boat has a different feel and travels faster. You have a "Speed Wheel".

Suppose your boat is a 30-footer, makes 7½ miles and the engine turns a 24-inch pitch wheel at 420 r.p.m. You are not making any stern wave and want more speed, your limit being 8 miles.

$$\text{Speed} = 7.5 \times 1.48 = 11.1 \text{ ft. sec. (1 m'l. h'r.} = 1.48 \text{ ft. sec.)}$$

$$\text{Screw travel} = \frac{24}{420} \times \frac{60}{12} = 14 \text{ ft. sec.}$$

$$\text{Slip} = 14 - 11.1 = 2.9 \text{ ft. sec.}$$

$$\text{Percentage slip} = \frac{2.9 \times 100}{14} = 21 \text{ per cent.}$$

This amount of slip is allowable and shows the wheel is big enough. So to raise your speed to 8 miles, you can reduce the pitch of the wheel to say 21 inches. This will enable the engine to turn up faster and give the additional power required. Find the new pitch angle and set the blades to that.

To find the pitch angle, draw a base line equal to three times the propeller's diameter, erect a perpendicular or square line at one end of the base line equal in length to the required pitch, and draw a hypotenuse for the triangle to the other end of the base line. The pitch—average pitch—angle is formed at this point. Set your bevel and twist your blades to the new angle.

Two sheet-metal templates of the approved pitch angle and dishing, and bent to proper radius, one for the outer, one for the half-diameter, are very useful in reshaping your blades after an accident. Sight across them to the end of the hub. And two stations on a blade are enough with your eye and a straight-edge.

Let's decide on the propeller for a 36-foot by 8-foot raised-deck cruiser. Cruising weight about 4 tons.

$$\text{Engine required for 9 m.p.h.} = 4.5 \times 4 = 18 \text{ h.p.}$$

$$\text{Propeller diameter} = 12 \sqrt[3]{18} \text{ Say } 32\text{-inch.}$$

$$\text{Screw travel with slip allowance} = (9 + 2) \times 1.48 = 16.28 \text{ ft. sec.}$$

To find the proper pitch of wheel for a Globe engine developing 18 h.p. at 240 r.p.m., or 4 per sec.

$$\text{Pitch} = \frac{16.28}{4} = \text{nearly } 4 \text{ feet or } 48 \text{ inches.}$$

Given a double-opposed engine requiring 600 r.p.m. to develop 18 h.p. or 10 per sec.

$$\text{Pitch} = \frac{16.28}{10} = 1.628 \text{ feet or } 19\frac{1}{2} \text{ inches.}$$

Whether you have to decide on a wheel for a high-speed hydroplane or a low-speed working boat, a very good rule for the propeller diameter is the following:

$$d \text{ inches} = \frac{70}{\text{Speed}} \sqrt{\text{H.P.}}$$

For all boats with less than 5 h.p. per ton displacement, proportion the diameter as follows:

$$d \text{ inches} = 12 \sqrt{\text{H. P.}}$$

This rule gives a good proportioned wheel even for large steamers.

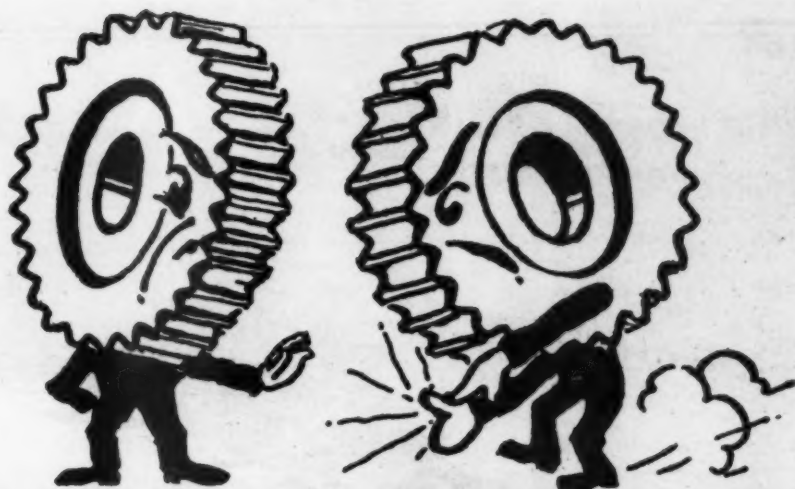
Actual horsepower	1	2	3	4	6	8	10	15	25	50
Diameter inches	12	15	17	19	22	24	26	30	35	44

If you like to figure try this on your pianola:

$$\text{Less than 5 h.p. per ton Prop. } d = 47 \sqrt{\frac{\text{HP}}{\text{LWL}}}$$

$$\text{Less than 5 h.p. per ton Speed} = \sqrt{\frac{\text{LWL}}{\text{Sp}^2 d}} \sqrt{\text{H.P. per T.}}$$

$$\text{Less than 5 h.p. per ton H.P.} \quad \text{LWL}^2$$



## WHEN GEAR MEETS GEAR

---

When gear meets gear there is bound to be more or less friction. But that friction can be held down to a negligible minimum by proper lubrication. MONOGRAM Transmission Oil has been especially prepared to meet the exacting requirements of gear lubrication. It has been eminently successful and we recommend it highly.

The Makers of Monogram

**NEW YORK LUBRICATING OIL CO**  
**N E W Y O R K**

---



## Marvelous New Ignition Current for Motor Boats

**H**ERE'S Columbia "Multiple" Dry Battery No. 356, with 4 times the life of an ordinary battery, and so absolutely waterproof it will work under water—

A spark that snaps—zips up an engine—makes lazy gas work. Perfect ignition for the first time in the history of motor boating!

*A Single Dry Battery of 15 Cellpower  
—Absolutely Waterproof—Only  
2 Binding Posts, and They're  
Perfectly Insulated*

Not a thing to keep in running order—not a spot to protect from rust—not a connector to work loose and break the circuit.

Ask your dealer today for a Columbia "Multiple" No. 356 for your ignition—and you'll order another soon for your lights.

**NATIONAL CARBON COMPANY**

*Incorporated*

Cleveland, Ohio San Francisco, Calif.

*Canadian National Carbon Co., Limited, Toronto, Canada*



# Columbia

## Dry and Storage Batteries



# NIAGARA MOTORS

We take pleasure in announcing the appointment of  
**PARR-LOICHOT ENGINE CORPORATION**  
380 Canal Street, New York City

as general distributors of Niagara Motors. The  
Niagara will be on display in their showrooms at  
the above address, and everyone interested is invited  
to call and make an inspection of our product.



**NIAGARA MOTORS CORPORATION**  
206 Niagara Blvd. Dunkirk, N. Y.

# NELSECO

HEAVY  
OIL  
ENGINES

DIESEL TYPE



**America's First Marine Diesel  
Engine Builders**

Over 150,000 B.H.P. now in use or on Order  
Size 120 B.H.P. and Upwards

# ULTRA-SIX

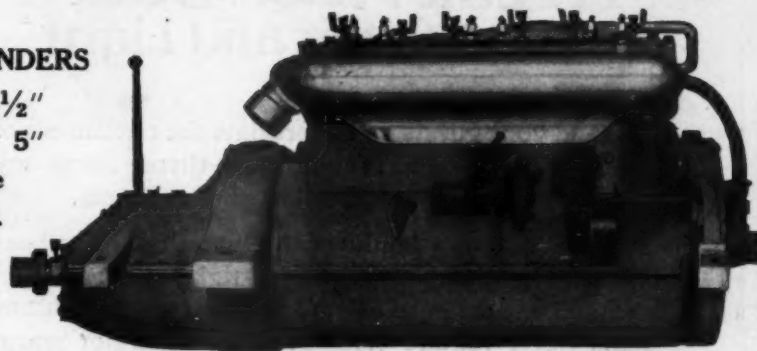
## MARINE POWER PLANT

### SIX CYLINDERS

Bore  $3\frac{1}{2}$ "

Stroke 5"

Four Cycle  
25-30 H.P.



Built-in Electric  
Starter

Pressure Feed  
Lubrication

Complete Equipment  
of High Grade  
Accessories

"A DISTINCT ADVANCE IN MARINE ENGINEERING"

## For Runabouts, Semi-Speed Boats and Light Cruisers

A new standard of marine motor service, and a new standard of value, is established by the Ultra-Six. For here is a motor embodying the best ideas of up-to-date automotive construction, designed throughout for the severe service a marine motor must withstand, and sold at a price made possible only by standardized quantity production.

The Ultra-Six gives the superlative smoothness and velvety power that can only be secured from a six cylinder motor, with its constant torque and perfect balance. This six cylinder motor will stand continuous operation, heavy loads and high speeds, and stand up to such work hour after hour without complaint. No other motor of its price, and no other motor of its horsepower (excepting sixes costing much more), can compare with the Ultra-Six as a power plant for fast runabouts, and light cruisers.

Price **\$595<sup>00</sup>** Complete

You owe it to yourself to know how well the Ultra-Six is built—with balanced crankshaft two inches in diameter, large valves, hot-spot economizer manifold, silent "Micarda" gears, liberal water jackets, positive pump circulations, pressure oiling, built-in electric starter, etc. So compact it may be installed in space required by most four cylinder engines—and no other motor is so simple or easy to install. Let us advise you how well the ULTRA-SIX will fit in with your plans.

Write to-day and secure an early place in our delivery schedule.

**THE LEWIS MOTOR MANUFACTURING COMPANY**

225 S. MAIN ST.

FOSTORIA, OHIO

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating



# MULLINS

## STEEL BOATS CAN'T SINK

Over 70,000  
in Service

### A Leak-Proof Boat -always Clean and Light

You and your guests will appreciate the cleanliness of a Mullins steel boat. It can't leak—there's never any water on the floor to soil shoes and garments.

The steel hull of a Mullins can't waterlog. The boat is always light and buoyant. Air-tight compartments fore and aft make it as safe as a lifeboat. Mullins Boats never require calking, as they cannot warp, waterlog or open at the seams. Weatherproof, too—no boathouse ever needed.

Mullins power boats are equipped with Wisconsin, Kermath, Universal, Pierce-Budd and Arrow Motors, the most dependable marine plants built. Patented, silent, under-water exhaust makes the Mullins the quietest boat afloat.

Safety, service and comfort are the three motor boat essentials. A Mullins has them all. Isn't this the kind of boat you want for real, downright enjoyment?

### THE MULLINS BODY CORPORATION

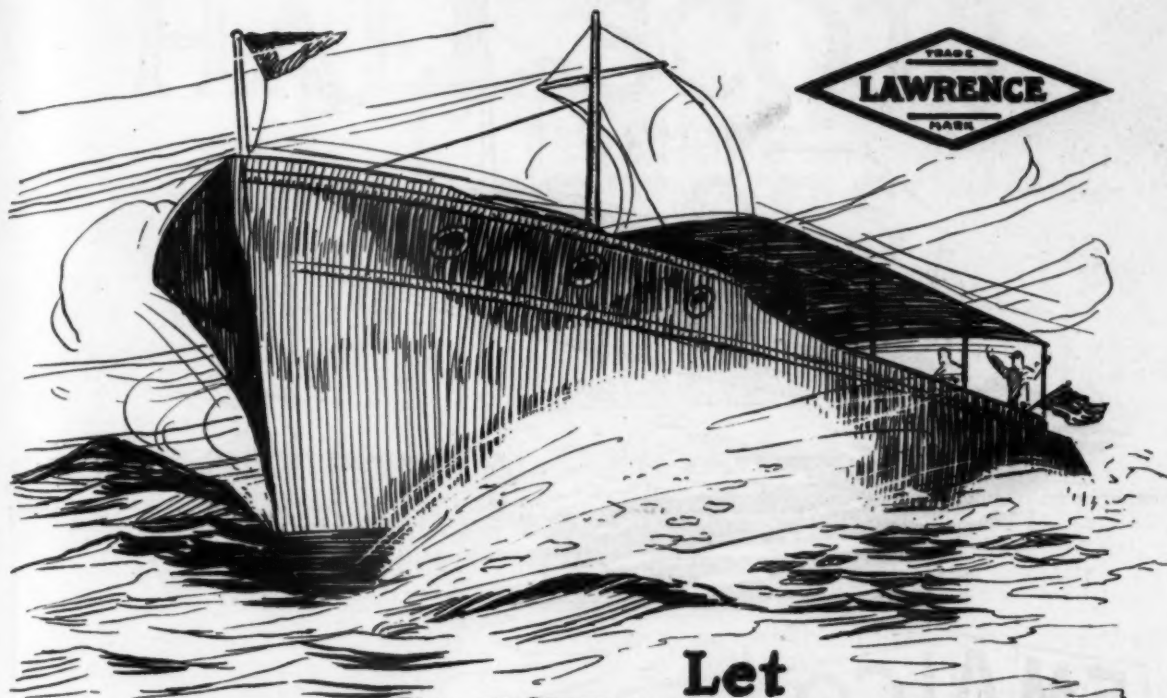
Boat Department

681 FRANKLIN ST., SALEM, OHIO

Mullins Boats are designed by America's foremost naval architects and are built in the world's largest boat factory.

Write for free catalog, showing over 40 models of steel and wooden power boats, rowboats and canoes.





## Let LAWRENCE PUT LIFE IN THAT OLD MOTOR

**I**T'S a shame to scrap a cylinder which has been scored so deep that it won't hold compression. But it's still more of a shame to try to keep such a cylinder in service, with gasoline at the prices prevailing today. There is only one practical and economical solution—let us repair it by the

### Lawrence Patent Process

Our expert workmen electrically fuse a silver nickel alloy into the defects or scores. The bore is not enlarged—the same piston and rings fit as perfectly as ever. The Lawrence Process positively cannot warp or harm the cylinders in any way and our work is *guaranteed for the life of the motor.*

*Write us today for quotations, telling size of score or defect, or ship your cylinders to our nearest plant at once.*

*Licenses under Lawrence Patent are available.*

### L. LAWRENCE & COMPANY

ESTABLISHED 1862

292 Halsey Street Newark, New Jersey

Licenses office: 2020 Woolworth Building, New York

#### LAWRENCE SERVICE PLANTS:

Buffalo—10 Sumner St.  
Chicago—1822 Michigan Ave.  
Cleveland—4529 Euclid Ave.  
Detroit—45 Moldrum Ave.  
Los Angeles—1059 S. Grand Ave.  
Milwaukee—18 Martin St.

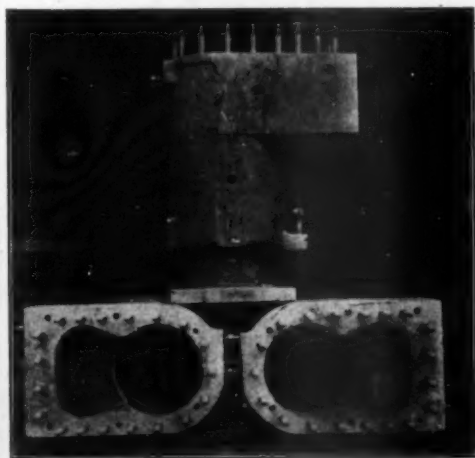
Minneapolis—14 N. 9th St.  
Newark—292 Halsey St.  
New York City—355 W. 57th St.  
Philadelphia—1901 Sumner St.  
Pittsburgh—5162 Baum Blvd.  
San Francisco—118 Hyde St.

Few territories still open.

Inquire at Woolworth Building, License Office.

We are equipped to handle and repair by the Lawrence Patent Process any size cylinder, from the smallest auto or marine motor, to the biggest stationary engine. No matter what the size, our repair gives you a cylinder as good as new at a fraction of the cost of replacement.

*When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating*





# EMALCO

## MARINE HARDWARE

*New England Headquarters  
for Motor Boat Supplies*



Emalco Universal  
Clamp



Maxim Silencer



Emalco  
Boat  
Clamp

Anchors	Electric Lights	Padlocks	Socket Wrenches
Batteries	Fenders	Paint Brushes	Spark Plugs
Bearings	Flags	Paint	Speed Indicators
Bells	Fog Horns	Piston Rings	Sponges
Bilge Bailers	Gauges	Polish	Steering Wheels
Binnacle Lamps	Hooks	Port Lights	Stoves
Blocks	Horns	Propellers	Strainers
Boat Hooks		Pulleys	Switches
Boat Scrapers		Pumps	
Bolts	Lamps	Rope	Tanks
Calking Irons	Lighting Outfits		Tiller Rope
Carburetors	Locks	Screws	Torches
Chain	Magnetos	Sea Cocks	Varnish
Clamps	Mufflers	Seam	Washers
Clocks	Nails	Composition	Wheel Pullers
Code Signals	Nuts	Search Lights	Whistles
Coils		Shackles	Windlasses
Compasses		Shafting	Wrenches
Cushions		Signals	

and everything else for your boat.

Write today for EMALCO Catalog if you want the best hardware  
at the most reasonable price. Export orders promptly attended to.

# MALONE HARDWARE COMPANY

"WHERE THAT DOLLAR STRETCHES"

378 Atlantic Ave.

Near Rowe's Wharf

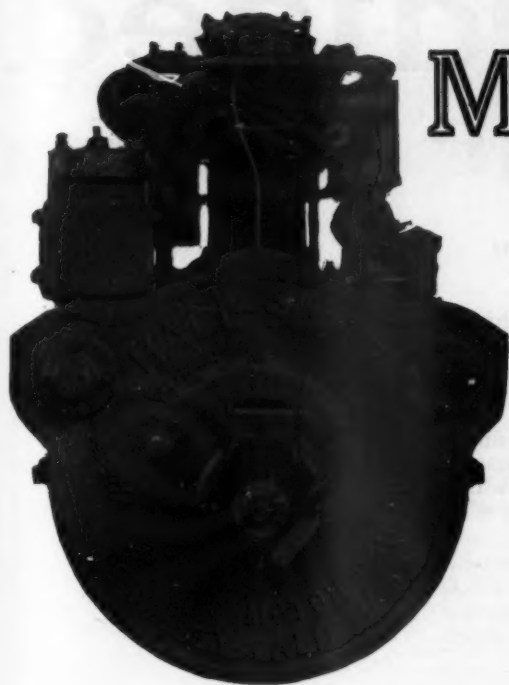
BOSTON, MASS.



# HALL-SCOTT

HIGH EFFICIENCY

## MOTORS



### DESIGN

DESIGNED BY A CORPS OF ENGINEERS HEADED BY COL. E. J. HALL, WORLD FAMOUS FOR HIS WORK ON THE LIBERTY MOTOR.

### CONSTRUCTION

BUILT IN A PLANT WITH AN ESTABLISHED REPUTATION FOR THE QUALITY OF ITS PRODUCTION.

### WORKMANSHIP

WORKMANSHIP OF PREVIOUSLY UNDEVELOPED ACCURACY AS APPLIED TO MARINE ENGINES, BY MEN HIGHLY TRAINED TO THE POSSIBILITIES OF CLOSE FITS AND TOLERANCES.

### TESTED

TESTED AS NO OTHER MARINE ENGINES ARE TESTED, ALL ENGINES BEING THOROUGHLY TESTED, THEN COMPLETELY TORN DOWN, CLEANED, INSPECTED, RE-ASSEMBLED, AND TESTED ON SPRAGUE ELECTRIC DYNAMOMETER, WHEN FULL RATED POWER MUST BE DEVELOPED TO THE COMPLETE SATISFACTION OF OUR ENGINEERING STAFF.

### HIGHER EFFICIENCY

DUE TO THE MUCH HIGHER EFFICIENCY OF HALL-SCOTT MARINE ENGINES AND CAREFUL RESEARCH WORK IN THE CHOICE OF MATERIALS OUR MOTORS ARE FROM FOUR TO EIGHT HUNDRED POUNDS LIGHTER THAN ANY OTHER MARINE ENGINE OF ANYWHERE NEAR EQUAL POWER. YOU KNOW WHAT THIS MEANS TO YOUR BOAT.

THERE IS A NEW SWEETNESS OF RUNNING, A NEW FREEDOM FROM UNPLEASANT VIBRATIONS AND MOTOR NOISES OF THE PAST, A NEW RESULT WHICH ONLY A DEMONSTRATION OF A HALL-SCOTT WILL DISCLOSE.

*Built in two sizes only* { 4 cylinders 125 H.P. weight 1070 lbs.  
6 cylinders 200 H.P. weight 1290 lbs.

### "PERFORMANCE"

#### 'N'EVERYTHIN

Southern Displacement  
Champion 1920.

Detroit Champion 1919.  
A.P.B.A. record holder

#### WE-WE

Runner-up Southern Dis-  
placement Championship  
1920.

#### MISS LOS ANGELES

Southern California Cham-  
pion.

#### KENAPSHAU

Runner-up Southern Cali-  
fornia Championship.

WRITE FOR CATALOGUE STATING YOUR REQUIREMENTS

## HALL-SCOTT MOTOR CAR CO., INC.

37-39 Associated Service Building

Factory: Berkeley, Calif.

BUFFALO, N. Y.

# Linking Standardized Products

## The "International 32"

**T**HE "International 32" is a business achievement, an engineering achievement and a boat building achievement, without a parallel in this industry.

It is a business achievement because it is the result of good, sound business ideas combining standardization, quantity production and high quality production, with a low price on a first class article, which is possible only when modern practices outlined are followed.

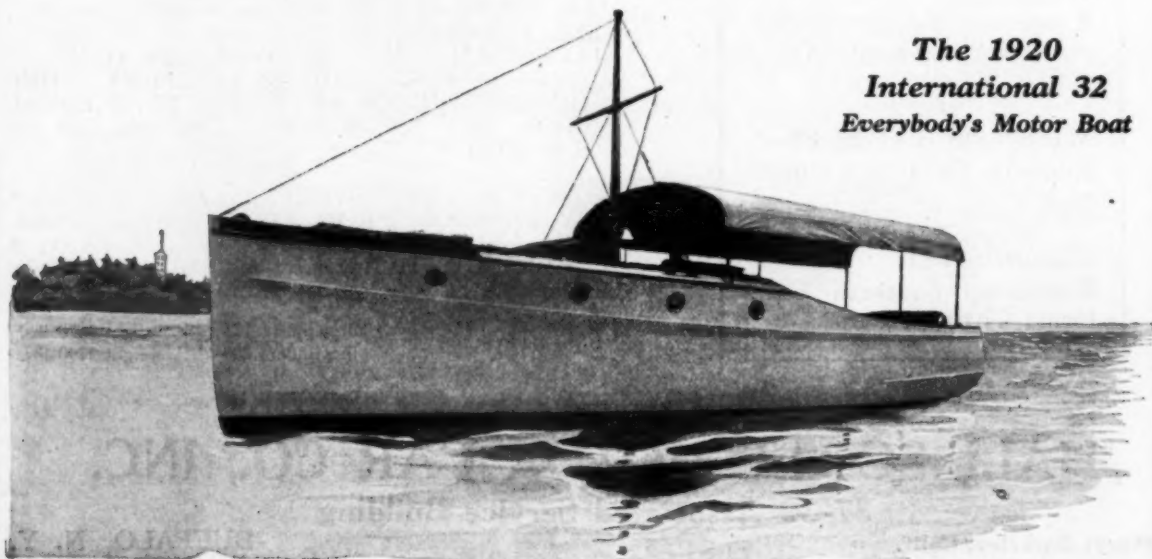
It is an engineering achievement, inasmuch as it presents the finest possible boat designing, and the combining in this design of high-class standardized products, each and every one of which are exactly suitable for the purpose for which they are carefully selected.

It is a boat building achievement because it gives to the boating public a finished product unquestionably superior to the boat which is built on a "one at a time" basis with fittings selected here and there—and put together without forethought, good designing and engineering.

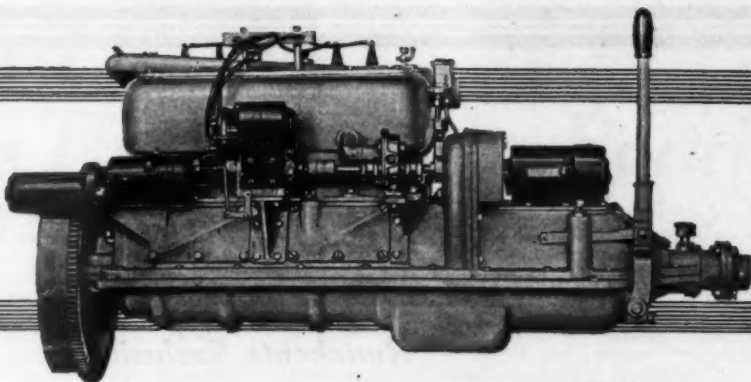
When the "International 32" was started, it was decided that from "Stem to Stern" it would be built from materials of the best quality only, further these materials must have proved their worth and be a thoroughly tried product.

*The Kermath "20" Met These Requirements*

**The 1920  
International 32  
Everybody's Motor Boat**



**"A Kermath  
Always Runs"**



### Powered by Kermath

**T**HE selection of the Kermath "20" for the power plant was made after careful and deliberate comparison of all other engines of about this power on the entire American market. It provided the proper power to drive this boat at a good cruising speed, and was compact and complete so as to provide an ideal installation.

It provided this power economically, without waste of fuel, oil or energy.

It gave perfect operation, ideal control, eliminated vibration, insured a clean engine compartment.

It was the most thoroughly standardized product available and an engine on which "International 32" owners could secure exceptional service all over the world.

Its components, the Bosch Magneto with impulse coupling, Park and Obenberger Drop Forgings, Oberdorfer pumps, Wagner starting and lighting units, Bethlehem plugs, Willard Batteries, Piston Ring Co. rings, Bantam Bearings, Kingston Carburetors, are all parts of the finest quality.

**KERMATH M'f'g Co.**  
**DETROIT** Dept. "D" **MICHIGAN.**







*Runabouts Exclusively*

## THE HACKER BOAT CO.

has the exclusive services of the world's foremost fast displacement boat designer—Mr. John L. Hacker, N.A.

They have the very best artisans available.

The Hacker Boat Co. Keeps its delivery promises.

## SATISFACTION

is guaranteed with

**Design, Workmanship, Seaworthiness, Speed  
and Comfort**

## THE HACKER BOAT CO.

*Are the First Purveyors of ACTUAL  
40 Mile Per Hour Displacement Boats*

**Their**

## 40 MILE SPECIAL

*Is the Ideal Family Runabout*

Powered with a 6 cyl. Hall-Scott motor if one wants the greatest speed efficiency with this design or with a 4 cyl. Hall-Scott if one is satisfied with 33 m.p.h. or better.

If you write to The Hacker Boat Co., 323 Crane Ave., Detroit, Mich., you may rely upon a prompt, courteous and edifying reply.

# No Joy in Life Surpasses That of Motor Boating

AND, thorough reliability in the marine engine is essential to that joy and pleasure.

The HESS MARINE MOTOR is the ideal power plant for yacht tender or for any boat up to and including 30 feet in length. It may also be used on larger boats as dependable power for the lighting plant.

The HESS is a one-cylinder, four-cycle motor of 4-5 h.p. and the product of twenty-two years of experience in the design and construction of marine engines back of it.

It can be operated at lower costs than any other marine engine in its class, such parts as the piston,

connecting rod, valves, valve springs, timing gears, bearings, etc., are interchangeable with those used in the FORD Motor. This is an unusually advantageous feature, as these parts can be secured from any FORD dealer or agent.

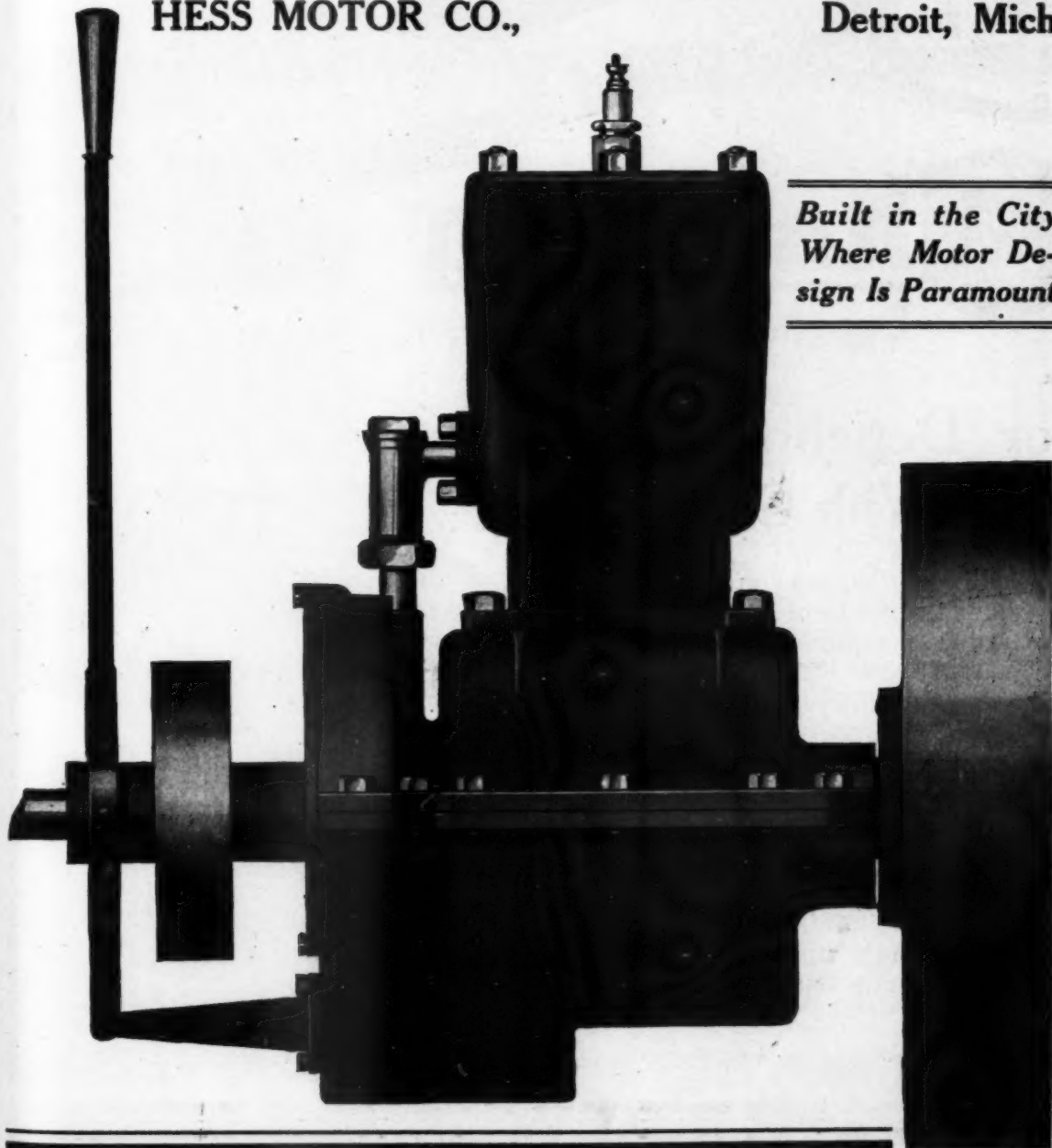
The best standard equipment is used in the HESS: Bosch Magneto, Stromberg Carburetor, Hot Spot Manifold, One-Way Clutch and Reverse Gear, etc.

Write us for full details regarding the HESS.

DEALERS, AGENTS and DISTRIBUTORS WANTED—territory now being allotted. Write, wire or 'phone us immediately.

HESS MOTOR CO.,

Detroit, Mich.




---

*Built in the City  
Where Motor De-  
sign Is Paramount*

---



## Champion

### Dependable Spark Plugs

## For Dependability— Equip With Champions

**W**HEN you launch your motor-boat for the maiden trip of the season see that the engine is equipped with Champion Dependable Spark Plugs.

Their extraordinary ability to withstand the intense heat and savage shocks of constant cylinder explosions, gives positive assurance of dependable performance for the ensuing months.

There is a Champion Spark Plug specially designed for every type of motor.

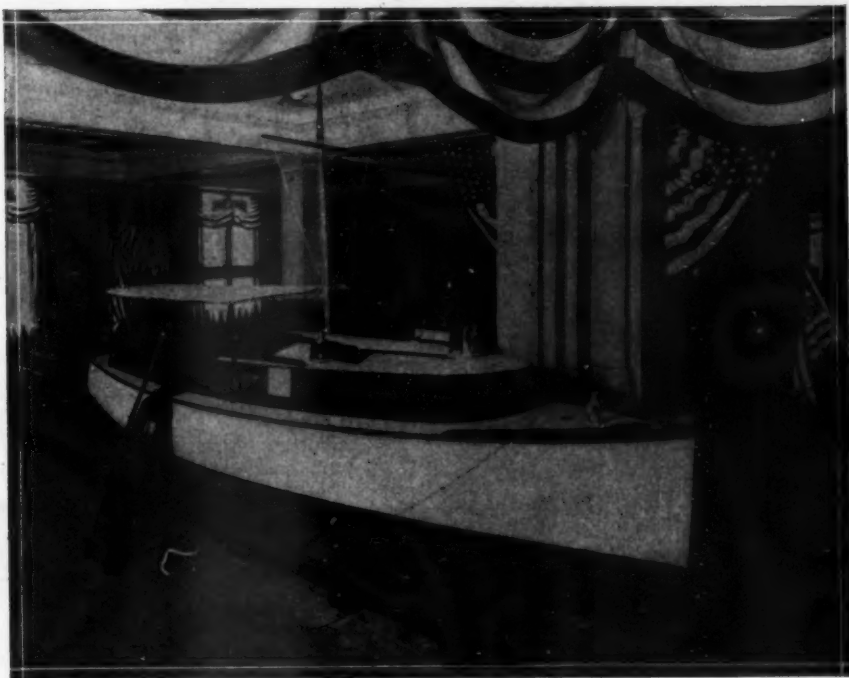
Be sure, in purchasing, that the name Champion is on the Insulator and the world trade-mark is on the box.

Champion Spark Plug Company, Toledo, Ohio  
Champion Spark Plug Company of Canada, Ltd., Winsor, Ont.



J. A. S. 43-75-18.  
For Marine Engines  
Price \$1.00



**J. V. B.**

## The Elco Cruisette is J. V. B. Equipped

**T**HE ELCO CRUISETTE, the remarkable 32-foot Cruiser exhibited at the New York Motor Boat Show, uses the J. V. B. engine as standard equipment for both the Open and the Cabin Model.

A folder issued by the Elco Works states "For the new Cruisette we have actually tried out fifteen different types of engines, our ambition being to offer Elco customers a power plant which would be the very best obtainable."

What the Elco Engineers discovered, other prominent Boat Builders likewise have found out—that the J. V. B. Engine is a tremendous improvement over anything that has previously been offered the trade.

Its compactness, its power, its efficiency and the complete manner in which it is equipped, all go to make this engine stand out head and shoulders above other types. YOU ought to have a J. V. B. in your boat.

The price of the J. V. B. Engine is \$1,250.00  
F. O. B. Cleveland, Ohio, completely equipt.

**THE J. V. B. ENGINE COMPANY, 5912 Central Ave., Cleveland, Ohio**

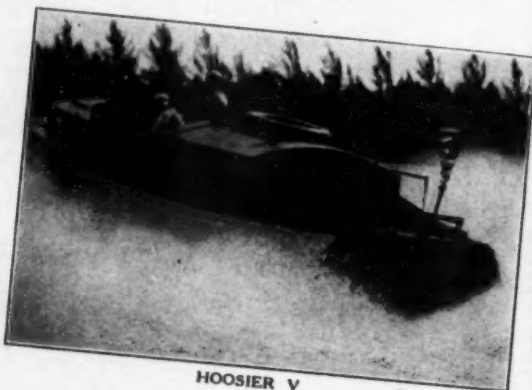
© 1920, Rex W. Wadman, Inc.

# AT THE MIAMI REGATTA HYDE TURBINE TYPE PROPELLERS

again proved their superiority. N'Everthin' and Hoosier V, the winning boats are both Hyde equipped.



N'EVERTHIN'



HOOSIER V

## THE WINNERS

N'Everthin' defeated all comers in the runabout class while Hoosier V won the Cruiser Championship, breaking the World's Cruiser Record and establishing a new one mile mark.

Repeated Victories cannot be attributed to chance. Hyde equipped boats are consistent winners. They have won nearly all of the important races for years. Isn't this sufficient proof of why YOU should use a Hyde?

*Catalog and data sheet upon request.*

**HYDE WINDLASS COMPANY**  
BATH, MAINE

## On Waters Where Once the Red Man Ruled

Quiet waters that once heard only the dip of Indian paddles now know the whirling propellers of countless Evinrudes. Over 100,000 are in use.

The Evinrude makes a dependable easily handled power boat of any rowboat or canoe. It takes the hard work out of fishing and hunting trips. So clean a woman can use it without soiling her clothes. Magneto, built-in-flywheel type, and automatic reverse are Evinrude refinements.

*Ask your hardware or sporting goods dealer,  
or write us for booklet*

### EVINRUDE MOTOR COMPANY

270 EVINRUDE BLDG., MILWAUKEE, WIS.

#### DISTRIBUTORS:

69 Cortlandt St., New York, N. Y.  
214 State Street, Boston, Mass.  
440 Market Street, San Francisco, Cal.  
211 Morrison St., Portland, Ore.  
10 & 12 No. Howard St., Baltimore, Md.



**EVINRUDE**  
DETACHABLE MOTOR FOR WATERCRAFT







View of our cribs at Long Island City, N. Y.

## Safe in the Cribbs!

**A**FTER thousands of miles from Africa or Mexico, millions of feet of beautiful mahogany safely floats in our enormous cribs—ready for the trip through the largest Mahogany and Veneer Mill on the Atlantic and Gulf Seaboard.

### Astoria Mahogany Co., Inc.

347 Madison Avenue, New York

Successors to

Huddleston-Marsh Mahogany Co.

Astoria Veneer Mills and Dock Co.

F. W. Kirch, Inc.

Mills and Yards, Long Island City, New York

Branches:

44 North Market Avenue  
Grand Rapids, Mich.

2256 Lumber Street  
Chicago, Ill.

## Specifications for 25-Foot V-Bottom Cruiser Zenith

(Continued from page 35)

### Decking

Raised freeboard deck to be of  $\frac{3}{4} \times 2\frac{1}{2}$  inches matched white pine fastened into deck beams with  $1\frac{1}{4}$  inches galvanized boat nails with heads let in. Deck to be planed smooth, heads of nails covered with white lead putty and entire deck covered with a single piece of 8-ounce duck, laid in shellac or marine glue and ironed down into place with hot flat irons. Edges to be hauled down over sides and neatly tacked where same will be covered by ribband rails when in position. Flaps to be left around all deck openings to be turned up on inner side of coamings when in position. Bridge deck and cockpit floor to be of white pine,  $\frac{3}{4} \times 2$  inches, with bunged fastenings. Seams to be caulked with cotton, run with paint and payed with Jeffrey's black marine glue.

### Deck Joinerwork—Ribbands

Upper and lower ribbands to be mahogany or oak,  $1 \times 1\frac{1}{4}$  inches, formed as indicated and set as shown by profile plan. To be bung fastened into place with brass screws. Ribbands faced with  $\frac{3}{4}$ -inch half oval brass. Ribbands tapered forward and at stern.

### Companionway

To be of the indicated type of mahogany with slide rails of  $1\frac{1}{4}$ -inch stock with ledge for beam end. Slide tops to be of  $\frac{3}{4} \times 3$ -inch mahogany with splined seams. Beams to be of oak  $1 \times 1\frac{1}{2}$  inches. Companionway to be fitted with slide doors of usual type to lift out.

### Skylight

A skylight 2x2 feet 6 inches inside measurements to be fitted where indicated on forward deck. To be a Lawley type or equal.

### Hand Rails

Neatly made hand rails of mahogany to be fitted where shown by plans. Same to be formed by  $1\frac{1}{4}$ -inch mahogany,  $2\frac{1}{4}$  inches high.

### Bitts

Oak main and quarter bitts to be fitted properly where indicated. Same to be neatly finished and properly provided with  $\frac{3}{4} \times 9$ -inch brass bitt pins.

### Motor Hatches

In the bridge deck over motor there will be a hatch opening as shown, covered by flush type hatch of  $\frac{3}{4} \times 2$ -inch white pine to match decking. Hatch to be built on oak beams, crowned to match deck,  $1\frac{1}{4} \times 1\frac{3}{4}$  inches, with ends supported on  $1\frac{1}{4}$ -inch oak gutter cleats as indicated. Gutter cleats to be arranged to lead all leak water aft to cockpit. There will be brass trim,  $1\frac{1}{2} \times 1\frac{1}{2}$ -inch hard stock, fastened by screws on hatch covering all joints. Brass ring bolts will be fitted in hatch for lifting same, to be through bolted.

### Interior Joinerwork—Flooring

Cabin and motor room to be floored with rift sawed Georgia pine  $\frac{3}{4} \times 3$ -inch, laid on floor timbers. Center sections to be arranged to be removable and flooring around motor to be removable in sections.

### Bulkheads

Indicated bulkheads to be of white pine, chamfered  $\frac{1}{2}$ -inch,  $2\frac{1}{2}$  inches wide, fitted and fastened in the usual manner.

### Doors

Locker doors to be of  $\frac{3}{4}$ -inch white pine with neat flat panels, hung in suitable mahogany casings on suitable brass butts with neat brass knobs.

### Toilet Room

To be located as shown and finished in white pine. To be fitted with water closet with mahogany seat and cover and all nickel plated trimmings and nickel plated folding lavatory. Closet to be properly installed with discharge and supply sea cocks and all plumbing details as recommended by the manufacturers.

### Main Cabin

All pine and inner sides of hull, including deck, to be finished in white and all mahogany trimmings in varnish. Lockers to be built of white pine. Cabin to be arranged with two transom berths, the tops of which shall be built with trap to lift up. In fronts there shall be flat panels as indicated. Forward there will be shelves as shown.

### Galley

To be located at aft end of main cabin, to be arranged with stove space with locker under. All woodwork under stove adjacent to same to be neatly sheathed with 18-ounce copper. Finish of galley to be in pine painted white.

(Continued on page 110)



## "Stretching the Dollar"

**W**HEN a man spends a dollar in these days he expects a definite return. No longer can he say, "Put in some tools" and forget it.

The **COES STEEL HANDLE WRENCH** stands out today as it always has as the leader, from every standpoint, strength, service and value.

It is designed to meet the demands of the hardest service. A COES wrench has no repair bill with it.

In the steel handle wrench there are five separate parts. Each is a solid piece. They are each designed to do their part of the work. Each part is heat-treated and hardened to insure strength and long wearing qualities.

The only way you can lose the services of a COES wrench is to lose the wrench.

Made in seven sizes, 6" to 21", each one a giant, and a leader.

From any reliable dealer.

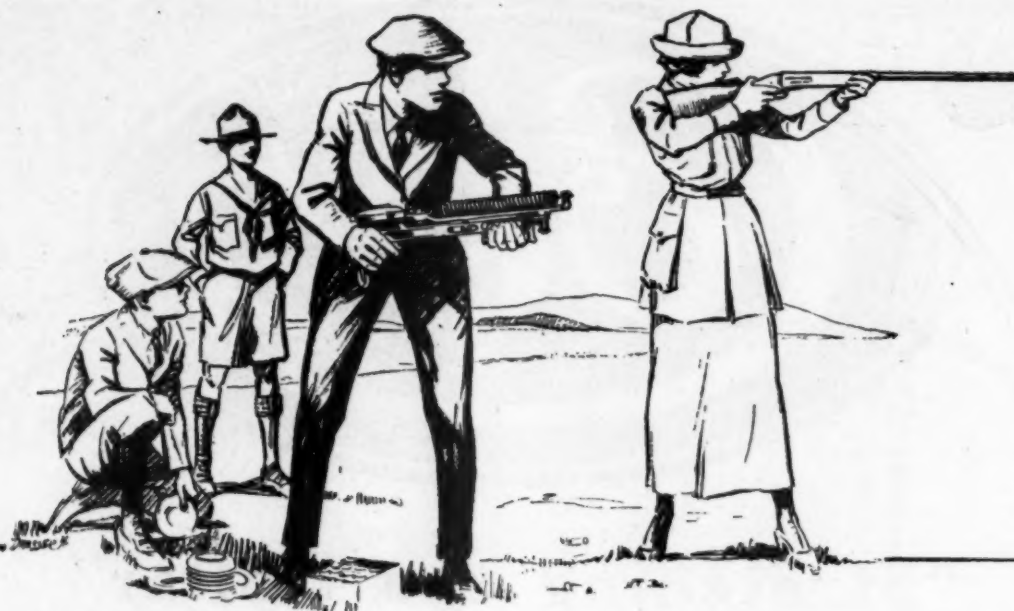
6"-21"



# COES WRENCH COMPANY

WORCESTER

MASS., U. S. A.



**Real Sport!**

**Anywhere!**

**Anytime!**

**SWISH!** Out flies the "clay" in a long, low curve. Follow it—cover it. **Crack!** You got it. "Dead Bird." That's real sport—always different, always fascinating. If you have never "broken them" yourself, you can't know the thrill of it.

Go out to your local gun club next Saturday afternoon and try your hand. That's all you'll need to get you started.

If there doesn't happen to be a gun club nearby you don't have to be out of the game. Thousands of people are forming their own

### Family Gun Clubs

You can buy at any hardware or sporting goods dealer's a small-bore gun, a little hand-trap, some "clays" and ammunition—all the outfit you need—for the cost of a pair of shoes. Put it in the car when you go out for a run, use it in any open field, off the boat—anywhere. One throws, the other shoots—the whole family will get real sport in this game. And wherever you shoot to get the best *results* use *dependable* loads.



### SMOKELESS SHOTGUN POWDERS

are used by seven out of every ten sportsmen—the standard of America.

**E. I. du Pont de Nemours & Company, Inc.**

Sales Dept.: Rifle and Shotgun Powders Division  
WILMINGTON, DELAWARE

---

**News for Rifle Shooters**—All regulation U. S. Army Target Ranges have been opened to the public. Free ammunition and instruction is furnished. We will be glad to direct you to the nearest range and send full particulars.





**NEW JERSEY  
COPPER PAINT**

"New Jersey" Red, Brown and Green Copper Paints, Anti-Corrosive and Anti-Fouling Paints protect the bottoms of yacht, cruiser and power boats the world over. All high quality paints that measure up to our reputation—our most valuable asset.

**New Jersey Paint Works**  
HARRY LOUDERBOUGH, Inc.  
Jersey City, New Jersey, U. S. A.  
Cable Address, "JERSEY," Jersey City, New Jersey, U. S. A.  
Use Western Union Telegraph Code. Long Distance Telephone

Marine Mixed Paints for topsides, decks, stacks, etc., that dry quickly, overcoming the annoyance of delayed tackiness. Send for color cards and general information.

"New Jersey" Yacht White is brilliant white and durable. It produces the exact semi-flat finish as is demanded by the most discriminating yachtsmen.

**JASCO SAFETY FIRST TANKS**

**FAULTY TANKS CAUSE FIRES AND EXPLOSIONS!**

Protect the lives of your family and friends when motorboating by carrying your gasoline in a

**"JASCO TANK"**

—the tank that safeguards life and property because it cannot leak. "Jasco" Tanks are made of the finest quality drawn steel—seamless, leakless, tinned and tested. They're endorsed by authorities—used by thousands. You can readily equip with a "Jasco" Tank. Send for booklet and detailed information.

**Janney, Steinmetz & Co.**  
Main Office: PHILADELPHIA  
New York Office:  
Hudson Terminal Building



## MORE POWER-GREATER SPEED-

Nothing will contribute more toward making a real summer than a speedy, vibrationless Koban. Attached in a few minutes to any rowboat, it gives you a fast power boat.

### The Great 2-CYLINDER KOBAN ROWBOAT MOTOR

The Koban gives you more power and greater speed than any other rowboat motor because it has two cylinders. It does not shake the boat. Only by this 2-cylinder opposed construction can you avoid the continual vibration that makes riding unpleasant, opens seams and ruins rowboats. Special tilting device, for shallow water and beaching.

Write for catalog and full information

We also make an Inboard Engine for small boats and canoes. Circular 80 tells all about it.

**Koban Manufacturing Co.** 246 South Water St. MILWAUKEE, WIS., U. S. A.



Does Not Shake the Boat

Dealers and agents write for our profit-making proposition

## Specifications for 25-Foot V-Bottom Cruiser Zenith

(Continued from page 106)

### Miscellaneous

Indicated steps in main cabin to be of  $\frac{3}{4}$ -inch mahogany with rubber treads and brass nosings. All details of interior joinerwork to be complete and in accordance with the best practice.

### Furnishings

In addition to items of furnishings hereinbefore mentioned, the builder is to supply suitable tan Leatherwove covered Japora silk floss filled cushions for main cabin transoms and cockpit seat.

### Metal Work—Rudder

To be of bronze Hand pattern No. 356, complete with quadrant and sleeve.

### Steering Gear

There will be a 17-inch cruiser steerer of proper height to conform with plan, properly fitted where indicated. Same to have all parts of brass with mahogany wheel rim and usual motor controls. To be properly connected with rudder quadrant by  $\frac{5}{16}$ -inch diameter phosphor bronze tiller rope, led over suitable sheaves.

### Strut

To be a bronze casting, Hand pattern No. 468, to include strut and skeg in one casting, bearing babbitt lined, securely bolted to hull with six  $\frac{3}{8}$ -inch bronze bolts with nuts on inner side of apron.

### Air Ports

To be three 6-inch air ports on each side of main cabin. Ports to be made with hinged part on inside of hull with sleeves projecting through to outside. All metal parts to be neatly polished and fitted in the best manner.

### Stuffingbox

To be M. D. Co. pattern K. S. to fit shaft, fastened in place with  $\frac{1}{2}$ -inch No. 15 brass screws.

### Miscellaneous

Builder to supply and properly fit all necessary deck hardware of polished bronze, including bow and stern chocks, bow and stern flagstaff sockets, cleats, companionway locks and all other minor items necessary to complete the work properly and to the satisfaction of the owner. All hardware to be of suitable size and of heavy pattern.

### Motor Installation

Motor, to be supplied by the builder, complete with all of its parts, including reverse gear, shaft, propeller, etc., gas tanks and piping, to be properly installed by the builder. All controls to be led to bridge deck and all details to be strictly in accordance with the best practice and satisfactory to the owner. The builder is to supply all piping and pipe fittings.

### Plumbing—Gasoline Tanks

Under cockpit floor at sides there will be two seamless tinned steel gasoline tanks 12x60 inches, each with two transverse swash plates, standard filler plugs and gasoline outlets. Tanks to be supported in strong spruce cradles as indicated. Fillers to be piped to 2-inch diameter flush brass deck plates.

### Water Tank

There will be a 10x16-inch x 30-inch 20-gallon 20-ounce copper fresh water tank on port side where indicated properly reinforced with swash plates and provided with suitable filling tap connected to main deck above by  $\frac{1}{4}$ -inch lead pipe properly fitted to tank and to deck plate of brass in deck. To be provided with suitable  $\frac{3}{4}$ -inch outlet bushing. Securely fastened in place. Water tank properly connected with lead pipe  $\frac{1}{2}$ -inch diameter to lavatory.

### Bilge Pump

A suitable 2-inch Hand type bilge pump to be furnished by the builder. Same to have a 10-inch hose.

### Electric Lights

The motor equipment to be supplied by the owner will include electric self-starter and storage battery. The builder will supply and properly connect with battery the following electric lights. In toilet room one dome light, in main cabin two dome lights, in galley one dome light. There will be four water-proof plug sockets properly fitted and located for running lights, the builder will also supply a set of brass electric running lights of size required by law, together with necessary plug wires and plugs to fit in sockets ready for use. There will be also two plug sockets and two dome lights in motor room under bridge, and one exploring light on a 12-foot cord.

(Continued on page 114)

# Gray Marine Motors for 1920

## PRODUCTION Increased

### Overhead Valves

This is the day of overhead valve motors. All the aeroplane motors—also the Reo, Marmon, Chevrolet, Buick, Nash and a host of others have adopted the overhead valve—it is more efficient, more powerful and more accessible.

### Back-firing

This motor cannot backfire and set fire to your boat.

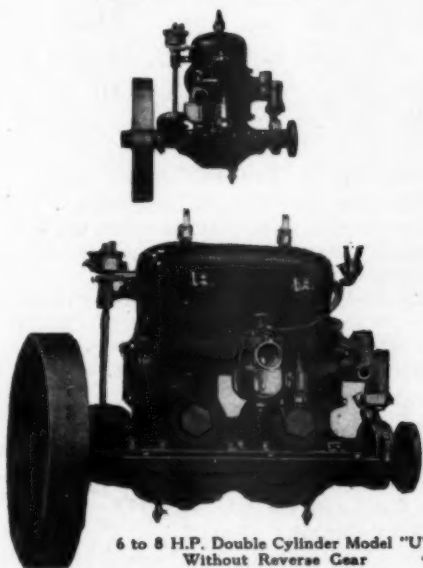
### Kerosene or Gasoline

All gasoline now is poor stuff, the motor designed five or six years ago uses it, but not satisfactorily. It takes a different design of intake to properly use this low grade fuel. Our HOT SPOT cylinder head uses not only gasoline of the poorer grades, but even kerosene and gives absolute control, flexibility and a clean motor.

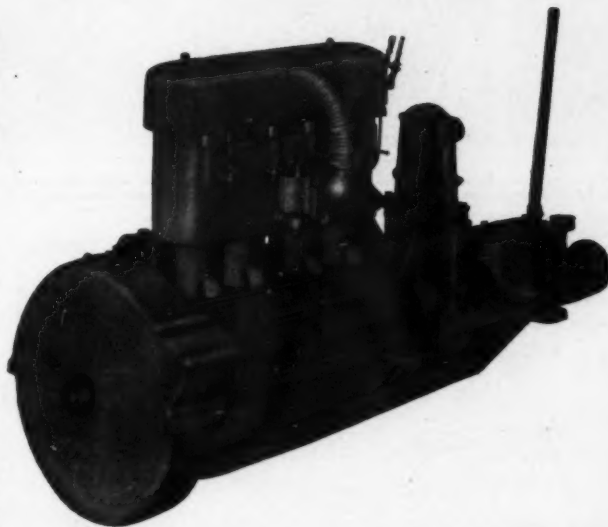
**Gray 2 Cycle—3 to 8 HP.**

**Standard the world over.**

**Reliable—Economical.**



6 to 8 H.P. Double Cylinder Model "U"  
Without Reverse Gear



This model "VM" Gray 4 cycle motor marks an epoch in Marine Motor history. In this motor is embodied the results of the most modern gasoline motor practice and backed by an old established motor building organization and its experience.

Slow Speed 500 to 600 Rev.—10 to 12 HP.	Medium Speed 700 to 900 Rev.—15 to 20 HP.	High Speed 1000 to 1200 Rev.—20 to 26 HP.
---	---	---

**Guaranteed for Work and Pleasure Boats**

## Gray 4<sup>Cycle</sup> Cylinder Motors

**In three sizes 10 to 50 HP.**

**all valve-in-head**

**write today for 1920 literature**

**Gray Motor Company**

**Detroit, Mich.**

**2106 Mack Avenue**



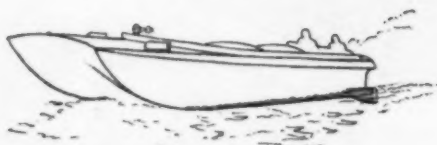


Hickman Patents  
in all  
Countries

# SEA SLED

Inverted V-bottom  
surface-propeller  
boats

TRADE REG. U. S. PAT. OFF.

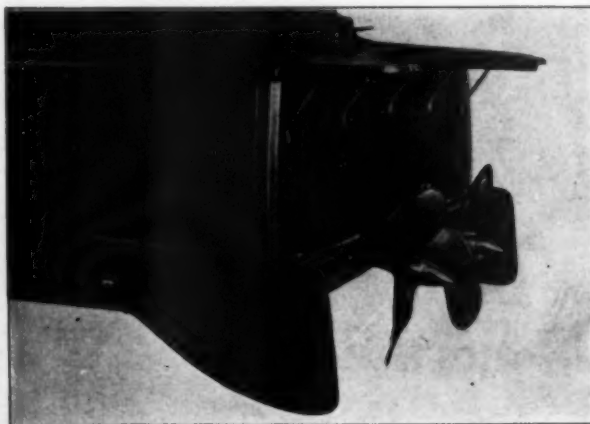


This sketch shows approximately the portion of a Sea Sled hull below the water line when running.

The Sea Sled skims over the surface of the water like a sled over the snow. The displacement boat ploughs through the water like a snow plough. Think of the comparative water resistance.

No wonder the Sea Sled can travel faster with the same power, can run at high speed through thick weeds or shoal waters. No wonder it is less affected by rough choppy water.

The Sea Sled is driven by surface propellers, only half of which are submerged. Proper design gives these surface propellers the same or greater driving thrust than the conventional underwater propeller. And there are no submerged parts, like propeller shaft, bearing, strut, propeller boss, rudder post, etc., to add resistance and interfere with high speed.



*Incomparably the finest sea boat  
in the world*

**T**HE only successful high speed motor boat that is practical for either pleasure or commercial purposes.

The most radical improvement in hull design for centuries—as revolutionary in technical advantages and in performance as it is in outward form.

The Sea Sled embodies more advantages than are found in all other types of motor boats combined.

## SUPERLATIVE ADVANTAGES

High speed for practical purposes.  
Comfortable in smooth or rough water.  
Notably dry and free from flying spray.  
Absolutely safe at all speeds.  
Adapted to shoal and weed grown waters.  
Easiest to control and maneuver.  
Greater stability under way and at rest.

# THE SEA SLED

BOSTON

BOEING AIRPLANE CO.  
SEATTLE, WASH.

# Why?

**B**OATS have been built in more or less the same form since history was written. The form was fixed by the ideas that the boat must displace its weight in water, must be pushed *through* the water, must literally part the water at the bow and push it aside that the boat may progress.

These ideas were right in their day, and are still, as far as slow-speed heavily-loaded craft are concerned. But progress has demanded a new type of boat, to take full advantage of the wonderful modern power plant, and to perform tasks formerly given up as impossible.

The adoption of the Sea Sled by the U. S. Navy should be sufficient evidence of its thorough practicability. During the past few seasons almost our entire attention and facilities were devoted to Government work.

The Sea Sled is now available for private use. Its unique characteristics make it ideal as a pleasure runabout, yacht tender, racing boat, a shallow water boat and wherever high speeds with comparatively large passenger capacity or heavy loads are required.

*Write today for more complete data, stating your requirements*

**COMPANY**  
**MASS.**

THE VIPER CO., LTD.  
PICTOU, NOVA SCOTIA, CANADA

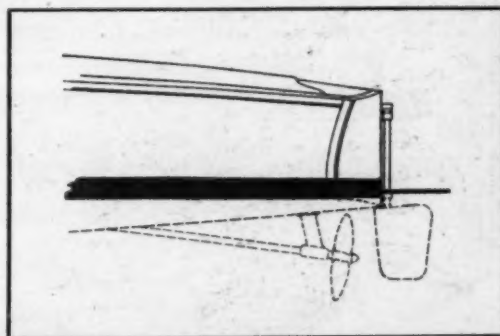


Compare the submerged portion of this conventional type hull with the sketch of a Sea Sled on the opposite page.

Whether purely a displacement boat or a hydroplane, this type of boat presents far greater resistance to water—consequently less speed for any given power. The pointed bow, cutting through the water, throws a bow wave and the flaring sides of the bow throw outward clouds of spray which are carried back to drench the occupants.

A hydroplane of the conventional type has approximately 60% of the weight carrying capacity of a Sea Sled of the same speed and power. Or the Sea Sled will carry the same load at higher speed with the same power.

Whether hydroplane or displacement boat, the underwater propeller shaft, bearing, strut, rudder post, etc., as sketched below, add a great amount of resistance to progress through the water, meaning wasted power and reduced speed.



# LUNKENHEIMER Automotive Accessories

## For use on all Types of Internal Combustion Engines

The choice of the engineer and owner who know, because experience has taught them that Lunkenheimer Automotive Accessories are unequalled for service and reliability.

Lunkenheimer Automotive Accessories perform the functions for which they are intended with a certainty that insures safe and economical operation. Their installation means permanence and low maintenance cost.

The best boats everywhere are "Lunkenheimer-equipped."

Leading dealers sell them; specify and insist on having the genuine.

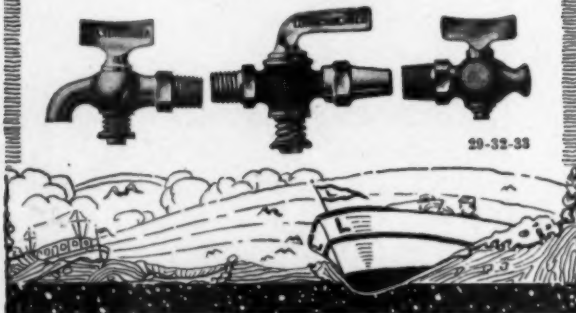
Write for catalog No. 4-CC.

**THE LUNKENHEIMER CO.**

Largest Manufacturers of  
High Grade Engineering Specialties  
in the World  
CINCINNATI

New York  
Chicago

London  
Boston



## Specifications for 25-Foot V-Bottom Cruiser Zenith

(Continued from page 110)

### Painting, Etc.

Above indicated painted waterline, the topsides are to be finished in four coats of the best white lead paint, mixed to give a light gray color. Below waterline, the hull is to finish with two coats of green bottom paint over one coat of red lead. Canvas deck coverings to be painted with three coats of straw color deck paint. The name and port to be put on stern in 3-inch plain block letters, gilded in gold leaf. All interior pine woodwork to be finished with three coats of the best flat white lead paint. Entire interior of hull to be painted with one good coat of red lead and oil below chine and three coats of white above. All other parts of hull, including rails, decks, companionway and mahogany trimmings to be finished bright with one coat of wood filler and three coats of the best marine spar varnish, properly applied in the usual manner.

### Fittings

There shall be furnished and fitted one 8-inch brass fog bell, one brass mounted boat hook, four cylindrical cork fenders, mahogany running light boards with suitable hardware of brass, four jacket life preservers, one broom, one mop, one scrub brush and one fibre bucket. One 25-pound galvanized iron kedge anchor and 35 fathoms of 2-inch three-strand manila cable.

### In General

Before the boat is delivered, the bilges, all pockets, closets and compartments must be cleaned and freed from all dirt, shavings, sawdust, etc., and the hull must be constructed under a suitable housing to protect while under construction. It is to be clearly understood that all materials and workmanship of every description shall be in general accordance with the plans and specifications and that work not specified herein but that is shown on the drawings or is manifestly necessary to complete the boat in a workmanlike manner is to be done without extra charge. All work must be executed to the satisfaction of the owner and under his direction or his duly authorized representative. The boat is to be delivered complete in all ways, ready for use.

## Get a Complete Set of Motor Boatmen's Charts

WE have had so many requests for the Motor Boatmen's Charts which we have been publishing in MoToR BOATING since last November that we have decided to get them out in more permanent form and to keep a supply on hand at all times. The charts, including all those which have been published in MoToR BOATING, will be printed on heavy cardboard and punched for insertion in a standard loose leaf folder. The size will be approximately 8 x 12 inches. We will send you the charts for twenty-five cents each or should you desire the entire series, these will be mailed to you month by month as they are published for \$1.00 per year. If you desire, we can supply the standard loose leaf folders, cloth bound, for \$1.50.

The charts which have so far appeared are as follows:

- No. 1—Western End of Long Island Sound.
- No. 2—Eastern End of Long Island Sound.
- No. 3—Block Island Sound.
- No. 4—New York Harbor.
- No. 5—Boston Harbor.
- No. 6—Buzzard's Bay.
- No. 7—Block Island to Vineyard Sound, including Narragansett Bay.

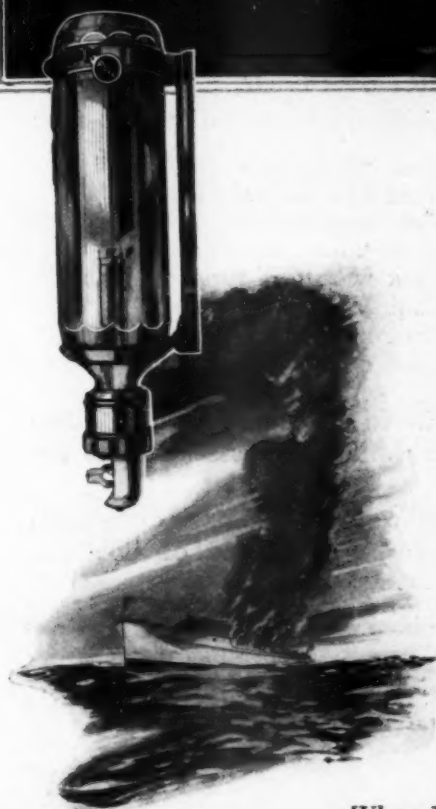
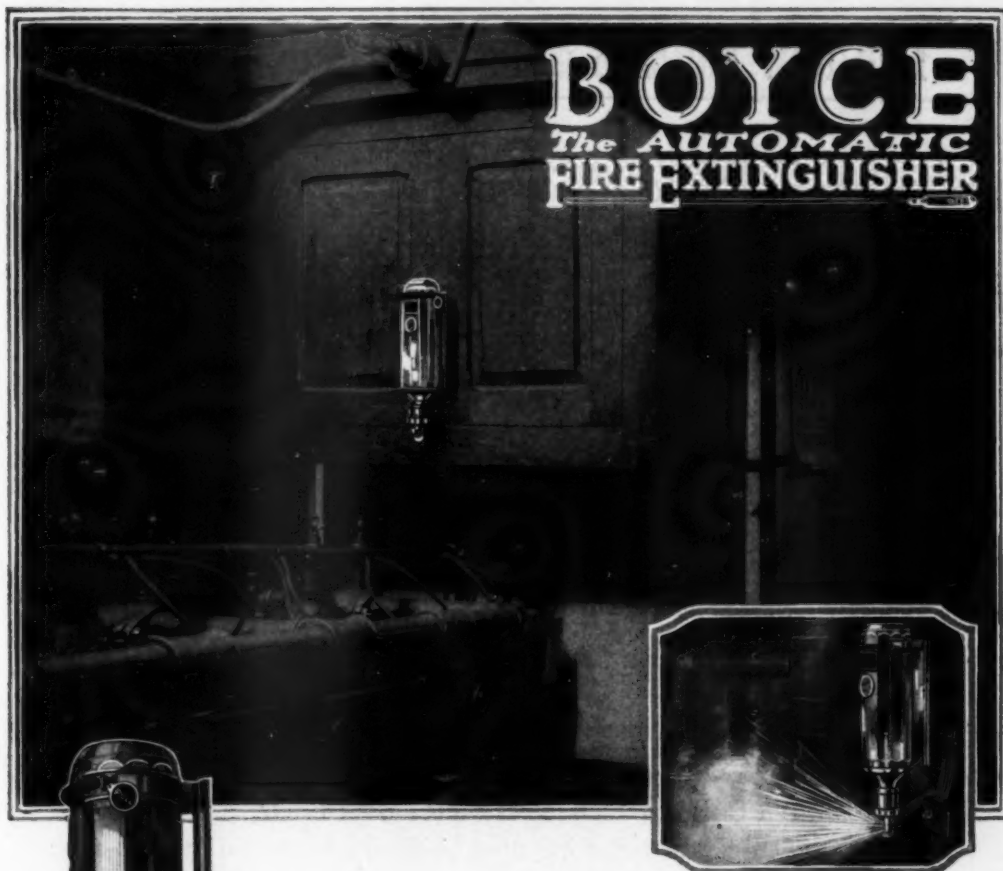
We are planning to add to the above by publishing a motor boatman's chart in each issue of MoToR BOATING.

### Log Book Sheets

We have also prepared a very attractive and complete log book sheet of the same size as the charts and to fit the same standard loose leaf folders. These log book sheets contain space for entering every bit of information which should be recorded when on a cruise. The information will also prove valuable data for future reference. Columns are provided for such data as time of passing various points and aids to navigation, magnetic and compass courses, total and distances between points passed, log readings, speed, motor revolutions, wind direction and force, weather, condition of sea, sounding depths, amount of fuel used, time of high and low water, fresh water used, time of placing running and night lights, names of crew and guests, etc., etc. Altogether there is space provided on each sheet for making over 200 notations without crowding any of them.

We will send you the log book sheets in sets of fifty, enough for several seasons' use for one dollar.





## Automatic!

The BOYCE Automatic Fire Extinguisher is the greatest safeguard for the yachtsman that has ever been devised. It is an **automatic** (as well as hand operative) fire extinguisher that gets into operation the minute a fire starts. The fire melts the fuse, the chemical is sprayed in a wide circle over the engine, creating a dense blanket of gas which instantly quenches the flames.

**Boyce-Veeder Corporation**

Long Island City

New York

*When You Need It Most—You Need The Best*

## Two New Motor Boating Hand Books Ready

### THE IDEAL SERIES

Two new MoToR BoatinG Handbooks are now ready for delivery. The two new books are known as the Ideal Series and they fill a gap in our otherwise complete line of books for Motor Boatmen.

The new books deal exclusively with designing and building small motor boats. The titles are

**Vol. I—Designs of Ideal Motor Boats.**

This volume describes in detail how to design a motor boat. It also contains complete plans of 30 Cruisers, Runabouts and Auxiliaries. The plans include lines, table of offsets, interior plans, profiles, construction details, etc. There is no book published at the present time which describes in everyday language the details of designing a boat according to your own tastes. The plans of Ideal Cruisers, Runabouts and Auxiliaries are complete in every particular. They include the best of the plans published in MoToR BoatinG during the past several years. The plans include boats of from 20 feet in length up to 40 feet. The drawings are all to scale and large size.

**Vol. II—How To Build Sixteen Ideal Motor Boat Boats.**

This book gives complete information for building the following boats:

9-foot dinghy	20-foot monoplane
10-foot mark boat	20-foot hydro-runabout
12-foot outboard motor boat	20-foot knockabout
12-foot speed boat	20-foot tunnel stern
12-foot bangabout	22-foot V-bottom runabout
13-foot sea skiff	25-foot V-bottom cruiser
16-foot sharpie	25-foot round-bottom cruiser
18-foot runabout	28-foot cruiser (Consort II)

Every article is fully illustrated with working drawings and no information or instructions are missing which would be of assistance to the novice to build his own boat.

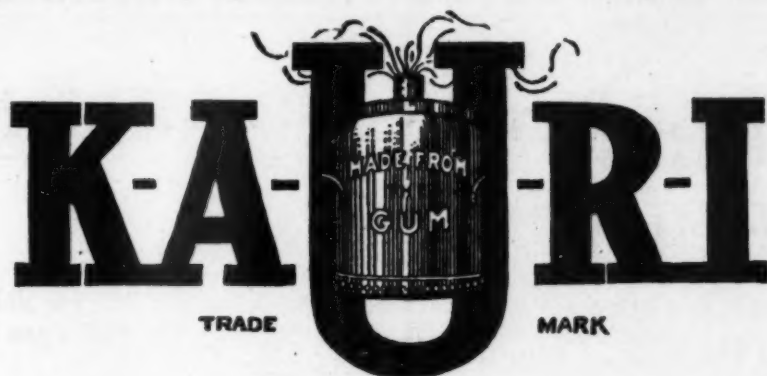
Both of the Ideal Books are printed in large type on extra fine paper. They have been edited by Charles F. Chapman, editor of MoToR BoatinG.

Price \$2.00 each or the two books for \$3.00

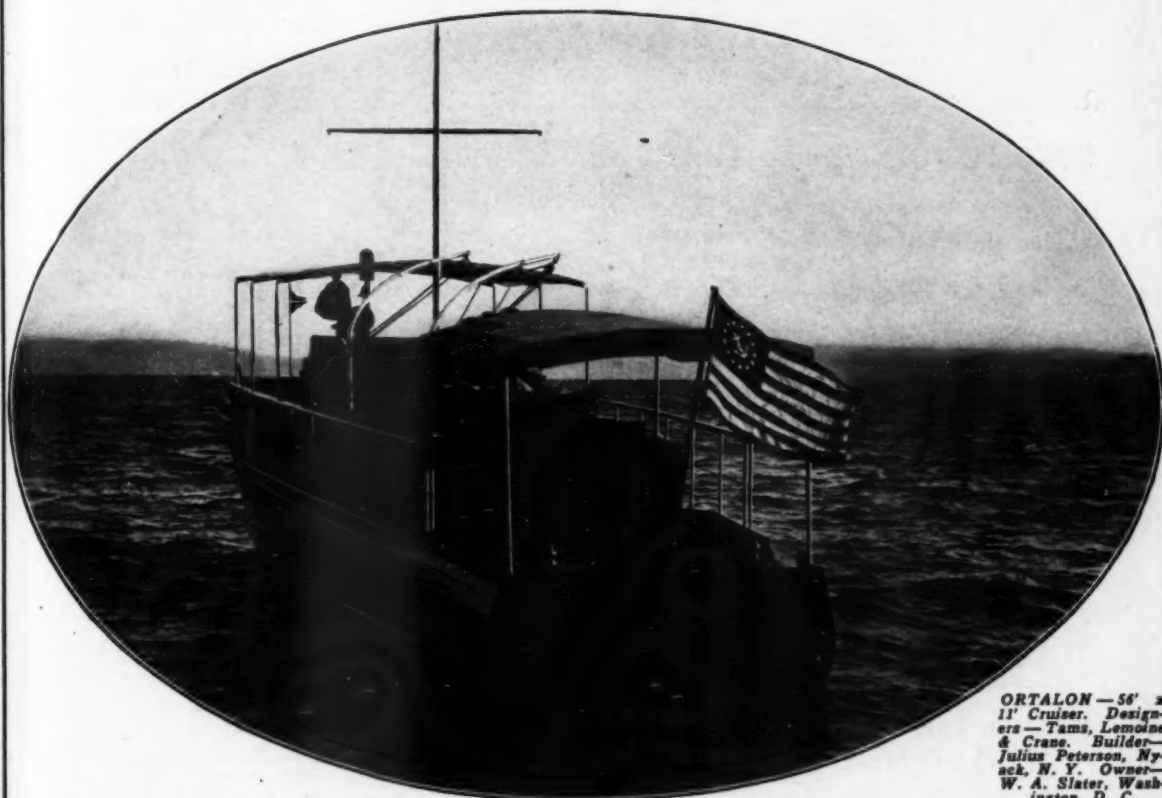
## MOTOR BOATING

119 West 40th Street

New York



*(Pronounced Cowrie)*



ORTALON—55' x 11' Cruiser. Designers—Tams, Lemoine & Crane. Builder—Julius Peterson, Nyack, N. Y. Owner—W. A. Slater, Washington, D. C.

## WATERPROOF SPAR VARNISH

Never a trace of white can mar the shining blackness of Ortalon's hull, for Ortalon is finished throughout, inside and out, with K-A-U-R-I Waterpoof Spar Varnish, the varnish that is absolutely guaranteed not to scratch white, turn white in salt or fresh water, chip, crack or bloom.

*Use K-A-U-R-I on your boat this season. Sold Everywhere*

Manufactured by

**BROOKLYN VARNISH MFG. COMPANY, Brooklyn, N. Y.**

When writing to advertisers please mention MoTOR BoATING, the National Magazine of Motor Boating



# PICTURESQUE MOTOR BOAT CRUISE

Trent Waterway  
Through Ontario, Canada

*A Fast Waterway of Chan-  
nelled Lakes and Rivers*

FOR OVER TWO HUNDRED MILES

## SPECIAL POINTS of the TRIP

1. Least draft of water 6 feet.  
To Peterborough, 8 feet.
2. To Lake Simcoe, locks 134 feet  
by 33 feet.
3. No canal tolls.
4. No customs restrictions.
5. Sunday locking at certain  
hours.
6. From Lake Simcoe to Georgian  
Bay for boats 35 feet length,  
and 9' 11½" width.
7. From Lake Simcoe, short  
radial run to Toronto.
8. From Lake Simcoe, short rail  
journey to Muskoka Lakes.
9. Important towns and cities passed, en  
route from Trenton—Campbellford,  
Hastings, City of Peterborough, Lake-  
field, Burleigh, Bobcaygeon, Lindsay,  
Kirkfield, Beaverton, Sutton, Jack-  
son's Point, Barrie, Orillia, Washago,  
Port Severn, Port McNicol, Midland  
and Penetang.
10. For Hotel or rooming accommodation  
or any further information, write the  
Secretary, Trent Waterway Develop-  
ment Association, c/o Board of Trade,  
Peterborough, Ontario, Canada; or  
the Secretaries, Boards of Trade of  
Orillia, Midland or Barrie.

(Cut of route will appear in next issue.)

## Handicap Cruiser Championship of North America

(Continued from page 38)

mittee and the Racing Commission of the American Power-Boat Association at least five days before the start of the race a measurement certificate signed by the Official Measurer or an Assistant Measurer of the American Power-Boat Association, said measurement to be for the current year.

### Article VIII

The Race Committee shall by mutual consent and agreement fix and decide all the terms and conditions of this championship race (not inconsistent with the terms and conditions of this instrument) whether relating to dates, courses, notices or any other matter whatsoever pertaining to the race or preliminary thereto.

### Article IX

If deemed desirable the terms of this agreement may be modified by the American Power-Boat Association, provided, however, that no modification shall be made during the pendency of any challenge unless consented to in writing by all challengers.

### Article X

In case the Club having the custody of the Trophy shall be dissolved, or shall cease to exist, or shall it or the person holding trophy refuse to or fail to comply with all the terms and conditions thereof the said trophy shall thereupon revert to the American Power-Boat Association and shall continue subject to the terms and conditions of this instrument.

### Article XI

The trophy shall be delivered to the Chairman of the Racing Commission of the American Power-Boat Association one week prior to the date set for any race for the said trophy, and a receipt given by the Chairman of the Racing Commission to the club or person.

After the finish of any race for the trophy, the Chairman of the Racing Commission of the American Power-Boat Association shall have the trophy suitably engraved with the name of the club or person and the boat winning same with date, and shall deliver said trophy to the proper official in the club or to the individual winning same, taking a receipt from the one receiving the trophy.

## Conditions for Block Island Race

The New York Athletic Club's Eleventh Annual Race for the Championship of Long Island Sound, Saturday, July 10, 1920, at 12 o'clock noon daylight saving time. Open to cruisers as defined by Rule VI, Division 1, of less than 50 and more than 28 feet l. w. l. owned by a member of a club belonging to the A. P. B. A.

Course: From Huckleberry Island to the West Harbor Block Island, disregarding buoys. Distance 100 nautical miles.

Time of Start: Preparatory signal 11:55 A. M. daylight saving time. Starting signal 12 noon daylight saving time.

Classes: Should the number of starters warrant, boats will be divided into two classes according to the rating and prizes awarded in each class.

Measurement Certificate: Rule V—A. P. B. A. All competing boats must present 1919 or 1920 measurement cards signed by one of the following A. P. B. A. measurers: F. W. Horenburger, L. Huxtable and J. A. Lindstrom.

Equipment: Each boat must carry a suitable tender, two anchors and cables, lead line, compass, charts, bucket and be fully equipped according to A. P. B. A. Rules.

Inspection: Boats must report at N. Y. A. Club Yacht House, Travers Island, before 10 A. M. on day of race for inspection.

Prizes: First prize, second prize if five start, third prize if seven start. An A. P. B. A. record certificate will be presented to the boat making the best correct time in each class.

Entries: Close noon July 1 at which time 1919 or 1920 measurement certificate must be received and should be sent to E. H. Tucker, Chairman Regatta Committee, 95 William St., New York City.

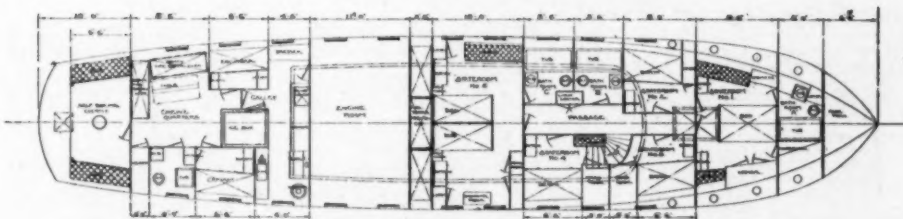
MAKERS OF FINE YACHTS.

## YACHTING THAT SATISFIES



92 ft. x 19 ft. x 3 ft. House Yacht.

This will be a big yachting year; why not enjoy the wonderful comfort of a houseboat? Economical in operation. A boat on which guests, owner and crew are all

**SATISFIED**

FOR SALE OR CHARTER

Two 85 ft. House Yachts are now in commission, and two 73 ft. House Yachts will be ready for delivery July first. Write or phone for complete specifications.

**20th CENTURY MOTORS**

Continuous  
Satisfaction  
for Nineteen  
Years is our  
Record



Built in sizes:  
2-Cyl. . . . . 15-20 H.P.  
4-Cyl. . . . . 40-50 H.P.  
6-Cyl. . . . . 65-75 H.P.  
All 6 1/4" Bore x 8 1/4" Stroke

**HEAVY DUTY TYPE**

6 cyl. 65-75 H. P.

**YACHTS AND HOUSEBOATS**

**NEW YORK YACHT, LAUNCH & ENGINE CO.**  
← BUILDERS →  
**MORRIS HEIGHTS, NEW YORK CITY.**



# MOTOR BOATING PRACTICAL HAND-BOOKS

Every motor boatman has long felt the need for a really complete and comprehensive library devoted to their favorite pastime—motor boating. One of the obstacles to the accomplishment of this important work was the difficulty in finding any one writer who could cover the field in its entirety. In presenting the new series of practical hand-books, MoToR BoatinG believes that the problem has been solved at last. These books are edited by Charles F. Chapman, M. E., the editor of MoToR BoatinG, and they are the results of months of untiring effort on his part, together with the best of thousands of suggestions sent to him by motor boatmen themselves. The list of the contents given below will give you some idea of the vast amount of ground covered by these volumes.

## Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gears, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom vs. Sharp Bilge; What are the Advantages of Flare? Raised Deck vs. Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The 1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Boom; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

## Practical Motor Boat Building

Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Join Between Stem and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shaftlog; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

## Practical Things Motor Boatmen Should Know

Volume 3.—Navigation is one of the important subjects covered in volume three of the series. Tells you how to steer, how to increase the factor of safety, and a host of other things relative to the proper running of your boat. The chart and compass are both fully explained in a clear and comprehensive manner. The list of contents will tell you more about it; Advice for the Beginner; Lessons Learned from Experience; Good Things to Know; Increasing the Factor of Safety; Which Way Should the Boat Steer? Why a Boat Steers Badly; Why do Boats Squat? Figuring the Boat's Speed; Ballasting the Cruiser; Getting Off Bottom; To Ride Out a Storm in a Motor Boat; The Why and How of Storm Oil; Preventing Fire; Handling Ground Tackle; Government Charts; Stowing the Anchor on a Cruiser; Diminishing Deviations; Preventing Electrolysis; Stowing and Using Charts; How to Make a Chart Case; Keeping a Motor Boat's Log; How to Make a Sextant; Tides and Tidal Waters; Taking Her Through the Canals; The Best All Round Dinghy; Towing the Tender; Handling the Dory in a Seaway; Getting the Tender Aboard; Planning for a Cruise; Equipping for a Cruise; Equipment for Offshore Cruising; Novel Events for Regatta Day; Handicapping; The Object of a Handicap Rule; Laying Off a Race Course; Measuring the Length of a Race Course; Preparing a Boat's Bottom for a Race; How to Build a Turning Buoy; Starting Boats in a Race; Stowing the Signal Flags; Fitting a Gun Mount; A Fish Box for Your Cruiser; A Cabin Wall Rack.

## Practical Marine Motors

Volume 4.—All about the marine motor; what it should and should not be. Tells why the automobile engine is unsuccessful in marine work. The best location for your engine, the ideal engine bed, the fuel tank, exhaust and countless other suggestions that will enable you to get the best results from your power plant. List of contents: Purchasing a Marine Motor; How Many Cylinders? Power per Cylinder; High Speed vs. Heavy Duty; Long Stroke vs. Short Stroke; Correct Motor Design; Changes in One's Power Plant; The Things that Cause Vibration; The Automobile Engine for a Boat; The Best Position for the Motor; The Ideal Engine Compartment; Placing the Engine in the Hull; Installing a Motor in a Canoe; Installing Power in a Yawl; Converting a "Banker" to Power Engine Installation in a Hydroplane; Putting Power in the Rowboat; Limits of Shaft Inclination; Constructing the Engine Bed; Getting the Motor Aboard; Lining Up the Propeller Shaft; The Best Exhaust; Mufflers vs. Under-Water Exhausts; Installing an Under-Water Exhaust; Primary Batteries for Ignition; Keeping the Ignition System Dry; Installing a High-Tension Magneto; From Make and Break to Jump Spark; Installing the Gasoline Tanks; Taking Care of Extra Gasoline; Spark and Throttle Controls; Constructing a Rear Starter; Propeller for Engine and Hull; Installing a Universal Joint; Gearing Motor to Propeller Shaft; The Automobile Throttle; Harnessing the Main Engine; Rebabbiting a Worn Bearing; Should Fuel Line be Inside or Outside.

## Practical Motor Operation and Maintenance

Volume 5.—One of the most valuable books of the entire set. Your motor's ills and how to cure them. This volume tells you how to adjust your carburetor, how to fit piston rings, how to remedy poor compression and a number of other things that will enable you to doctor your own motor. List of contents: Locating the Motor's Troubles; The Overheated Motor; Starting in Cold Weather; Overhauling a Marine Motor; How to Save Fuel; The Fuel Situation; Using Low Grade Fuel; How to Run on Kerosene; Supplying the Fuel to the Carburetor; Adjusting the Carburetor; Cleaning the Fuel Tanks; Cleaning the Gasoline Line; Stopping Up the Leak in the Tank; A Home-Made Gasoline Gauge; Carrying an Extra Supply of Oil; Mixing the Fuel and Lubricant; Remedying Leaky Compression; Killing the Carbon Jinx; Tool and Spare Parts to Carry; Removing and Replacing Piston Rings; Repairing a Leaky Cylinder; Grinding a Motor's Valves; Setting the Valves; Timing the Ignition System; Cleaning the Water Jacket; Making and Fitting a Gasket; Patching Up a Bearing; Straightening the Sprung Shaft; Truing a Bent Propeller; Removing the Flywheel; Separating Couplings and Pipe Fittings; Changing the Shaft Hole Location; Utilizing the Exhaust; Disposing of the Bilge Water; Heating a Small Cruiser's Cabin; Operating the Outboard Motor; The Clean and Quiet Boat; Charging a Storage Battery; When the Motor Stops Unexpectedly; Making a Unit Power Plant.

## Practical Suggestions for Handling, Fitting Out and Caring for the Boat

Volume 6.—This volume is an especially valuable one. You will find in it points covering the care of your boat that you never dreamed of before. Whether you are a beginner or a finished expert this book will give you a better knowledge of the handling of your craft than you can imagine. List of contents: Putting the Boat into Commission; Fitting Out a Thirty-Footer; Suggestions for the Beginner; Refinishing Bright Work; Keeping the Wood Surface Bright; Putting the Boat Out of Commission; Laying Up an Unsheltered Boat; Hauling Out for the Winter; Covering the Boat for the Winter; Launching from a Wharf; Correcting Faults; Lengthening Out the Boat; Moorings and Buoy; Taking Steps to Safeguard the Anchor; What to Use in the Bilge; Preserving the Wood in Boats; Emergency Rigs for the Cruiser; Auxiliary Sails for the Cruiser; Providing an Emergency Rudder; Preparing for Southern Waters; Stopping the Troublesome Leak; Replacing a Broken Plank; Removing Broken Lag Screws; Raising the Boat's Stern; Clearing the Propeller; Protecting the Bow and Stern; Open Boat Sleeping Quarters; Ventilating the Cabin of Small Cruisers; Converting the Open Boat to a Cruiser; Making a Cover for the Open Boat; Preventing Electrolysis; Building a Club Float; A Floating Boathouse; Constructing a Landing Stage; Building the Marine; Keeping the Thief Out; A Place for Your Shore Clothes; Stowing for Life Preservers; The Winter's Alterations; What Changes Shall I Make; The Satisfactory Bilge Pump; The Pressure Water System; Making a Pelorus; Your Storm Curtains; Life-Saving Equipment; The Absent Owner's Anchor Light; Mounting the Reverse Gear.

Price \$1.50 Per Volume, or \$7.50 Per Set of Six Volumes of Over 1,000 Pages

The books measure 7 x 10 inches and are handsomely bound in cloth. Each volume is fully illustrated and printed in clear type on fine paper.

**MoToR BoatinG**

119 West 40th Street, New York

Advertising Index will be found on page 130



What  
**STANDARD**  
Means to You



# STANDARD REVERSE GEAR

**"A Dependable Reverse"**

When you need a Reverse you need it bad  
It is to the motor boat what the brake is to the automobile

Over 30,000 motor boats of all types and sizes are equipped with Standard Reverse Gears. They all say "It never fails to reverse."

The life of these gears is limited only by the life of the boat.



Our Standard reverse gears are strong, absolutely quiet, clean, and trouble-proof. They run in a bath of oil and do not occupy much space in your boat.

For complete information about the best reverse gear built—

*Write now for new catalog and prices*

**STANDARD GEAR CO.**

700 Commonwealth Ave.

Detroit

Michigan



## Bucks Eddies and Whirlpools 150 Miles Without a Miss

**T**HE boat is 46 feet long, with a 20-foot cabin, owned by the Union Fish and Oyster Company, Alexandria, La. The motor is a 16 H.P. Frisbie, Valve-in-Head.

Trip after trip the Frisbie bucks the treacherous current of the Red River from near Naples to Alexandria, about 150 miles, without a miss. On one trip from Alexandria to Black River the boat carried more than eight tons of freight.

The plus-power of the Frisbie, coupled with its absolute reliability under trying conditions, makes it an ideal medium duty motor for commercial boats and work boats.

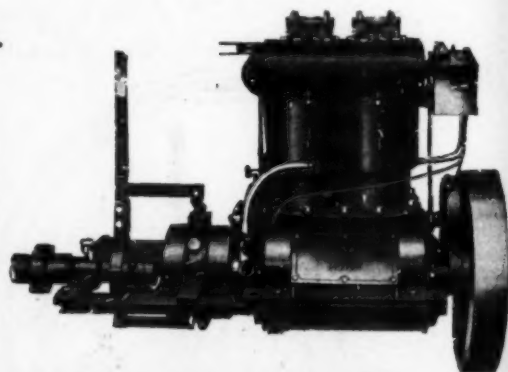
*Write for Frisbie Catalog*

**FRISBIE MOTOR COMPANY**

7 College St., Middletown, Conn.

1 cyl. 5 and 7 H.P.  
2 cyl. 10 and 16 H.P.  
3 cyl. 18 and 25 H.P.  
4 cyl. 30 and 40 H.P.  
6 cyl. 50 and 75 H.P.

*All Four Cycle*



# Frisbie an' I

# "GIBBS QUALITY"



25-Foot Yacht Tender Making 23 Miles.

High Grade

Runabouts

Cruisers

Yacht Tenders

Dinghys

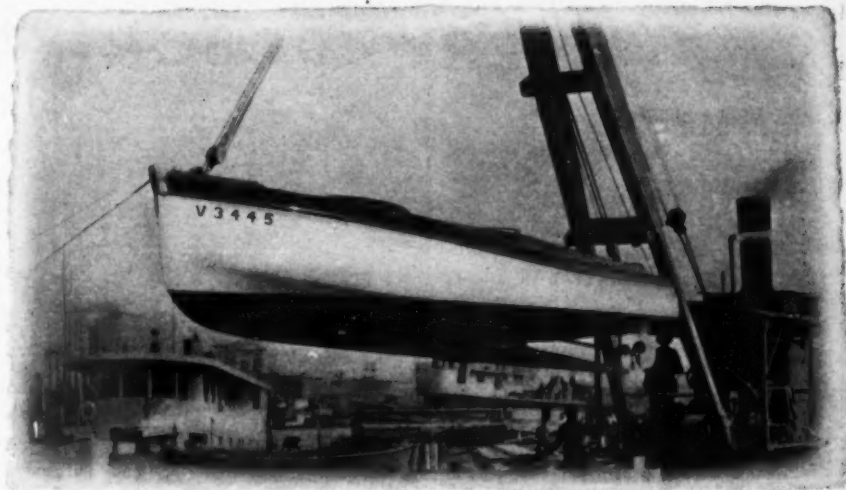
We Build

Small

Boats

of every

Description



Specialists on Power House Boats  
and Fishing Boats for  
Florida Service

We invite inquiries. At your service for  
—QUALITY AND EFFICIENCY—

**GIBBS GAS ENGINE COMPANY**  
JACKSONVILLE, FLORIDA





# TOPPING BROTHERS

MARINE HARDWARE  
OF EVERY DESCRIPTION

Shipbuilding Supplies

Cabin Hardware

Cargo, Boom and Mast Fittings

## PORT LIGHTS, ALL DESIGNS AND SIZES

Calking Irons  
Ship Augers  
Anchors

Treenail Augers  
Brass Bolts  
Ship Clamps

Anchor and Sailing Lights  
Ship Scrapers  
Rowlocks

### CLEATS

Cast Iron  
Galvanized  
Brass

### ROPE

Wire  
Manila  
Tiller

### THIMBLES

Wire Rope  
Sail  
Brass

### ANCHORS

Loose Stock  
Trawl  
Folding

### CHAIN SHACKLES

### BLOCKS

Mall, Iron  
Deck -  
Yacht

Mast Hoops  
Boat Hooks  
Life Preservers

Deck Plates  
Rudders

Clinch Rings  
Turnbuckles  
Quadrants

## HARTMAN PROPELLERS

Hawse Pipes  
Fenders  
Bilge Pumps  
Pitch

Chain Hooks  
Eye Bolts  
Snap Hooks

Bow Chocks  
Stern Chocks  
Boat Nails  
Marine Engines  
and Equipment

## SHIP CARPENTERS' TOOLS

# TOPPING BROTHERS

ESTABLISHED 1885

## 122 CHAMBERS ST NEW YORK

# OUR LATEST MASTERPIECE

The creative genius of our organization has again produced a product of Power and Prestige.

The New "LYNDONIA" the finest yacht afloat — an achievement in beauty and perfection.

Built by the Consolidated Shipbuilding Corporation, world famous as master builders of Pleasure Craft.

*We furnish consultant service in the preparation of plans and specifications. We shall be pleased to take up matters pertaining to any type boat in which you are interested.*



*Write for our Booklet "For the Man who knows good Boats."*

**CONSOLIDATED**  
SHIPBUILDING CORPORATION  
MORRIS HEIGHTS, NEW YORK CITY



*When writing to advertisers please mention MoToR BoATING, the National Magazine of Motor Boating*



**DEV** **MARINE PAINTS AND VARNISHES**

**They Look Better—Last Longer**

DEVVOE Marine specialties are guaranteed to give better results. Each is prepared for a particular surface and service. The longest experience in the paint industry is behind every can.

**Columbia Yacht White**  
a permanent white for topsides, deckhouses and the finest yacht work. It gives a semi-gloss finish which can be scrubbed with soap and water.

**Vernosite**  
this long life spar varnish will not scratch white or blister. It cannot turn white or lose its gloss under sun, rain, snow, sleet or salt water.

**Devvoe Deck Paint**  
outwears wear, water and weather. Stands extreme sun, heat and will not crack, peel or chip. Seven durable colors.

**Heat-Resisting Enamel**  
gives a high, oil proof, heat proof gloss to marine engines that keeps them clean, bright and rust free. Easy to apply, hard to chip off. Eight rich colors.

At Paint, Hardware and Ship Supply Dealers.

**DEVVOE**

The oldest paint manufacturing concern in the United States. Founded 1754.

**DEVVOE & RAYNOLDS CO., INC.**

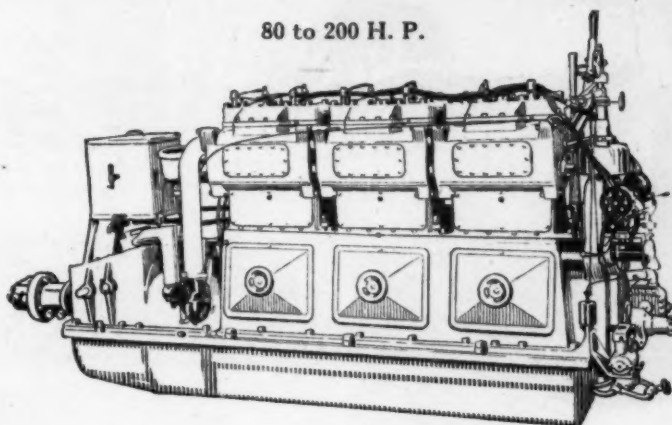
New York 101 Fulton St. Chicago 14 West Lake St.



# Winton

Gasoline  
Marine Engines

80 to 200 H. P.



## Throb and Noise are Costly

You buy an engine for the power it produces. But, it is important for you to know, in advance, *how* that engine produces its power.

Some boat owners have looked upon engine steadiness and quietness as rather a nice quality, without having any special value.

Some owners even take pride in noise and vibration as evidence of an engine's bull dog tenacity in "hanging on."

But the fact is that an engine which must throb and shake and pound in order to deliver the power you require, is surely an engine hastening to its decay. And it is a poor investment. It is destined at some unexpected

moment to leave you in the lurch—and the moment will be all the more unexpected because you had become accustomed to its laboring action.

A real engine will take its work with no bluster whatever. It will perform its duty with no sign of effort. It will serve you long and faithfully, proving its worth. You will have very little experience with "engine troubles" and very few delays and very few repair bills.

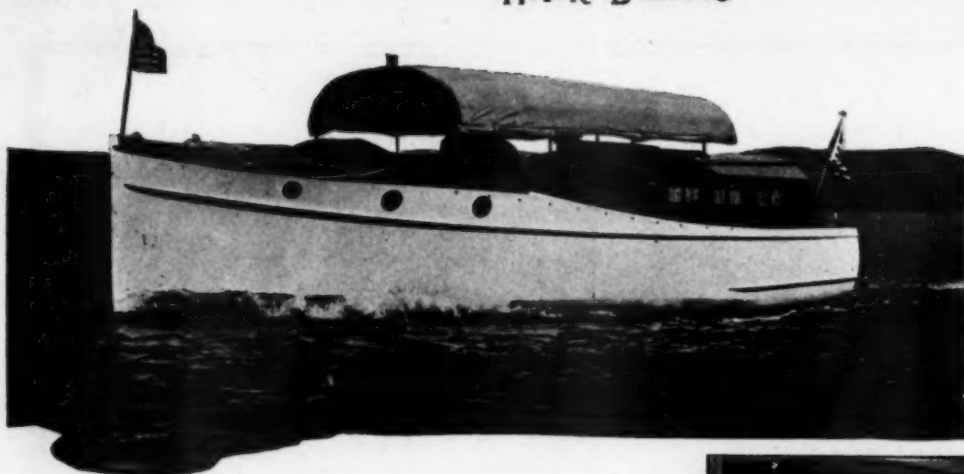
We can give you information about such engines. We make them in five sizes, 80 to 200 H. P., six and eight cylinders, designed for yachts and workboats. May we send you the facts and figures?

### WINTON ENGINE WORKS

2122 WEST 106TH STREET

CLEVELAND, OHIO

DEALERS: New York—Rost, Angstrom & Giese, Inc., 1778 Broadway. New Orleans—A. Baldwin & Co., Ltd. Jacksonville, Fla.—Gibbs Engineering Co. San Francisco—F. G. Bryant, 424 Ellis Street. Seattle, Wash.—H. W. Starrett, Sunset Engine Co.

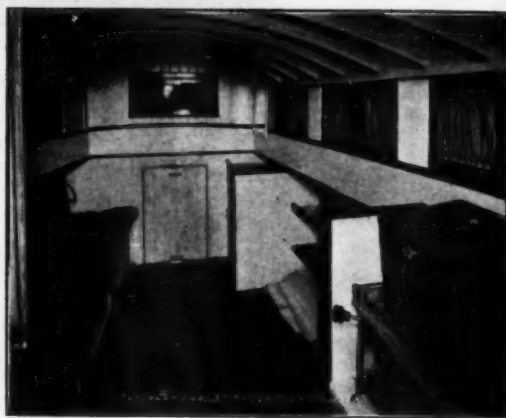


Bridge Deck Cruiser  
Complete  
Ready to Cruise  
**\$4000**

Immediate Delivery from Stock  
Trial Before Purchase  
Proven Value

THE  
"INTERNATIONAL THIRTY-TWOS"

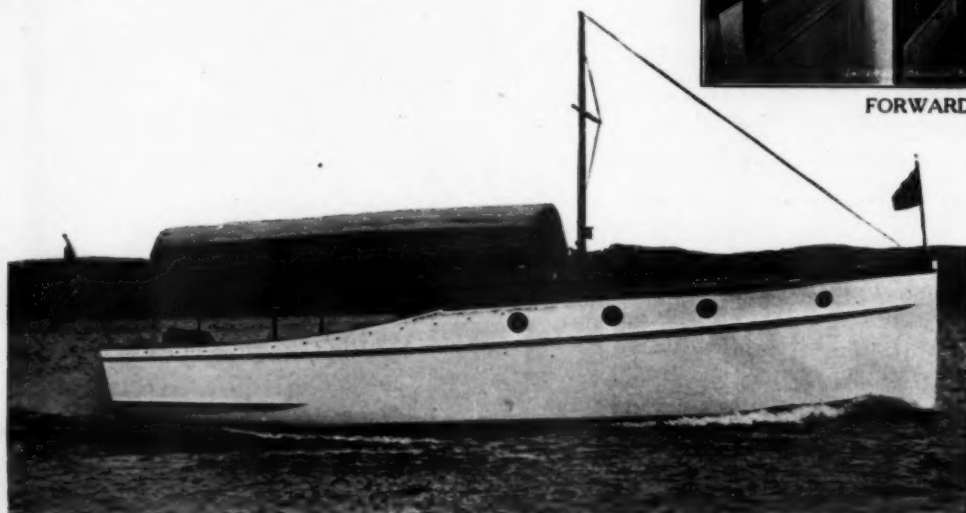
**INTERNATIONAL**  
SHIPBUILDING AND MARINE ENGINEERING  
CORPORATION  
NYACK, NEW YORK, U.S.A.



AFT CABIN



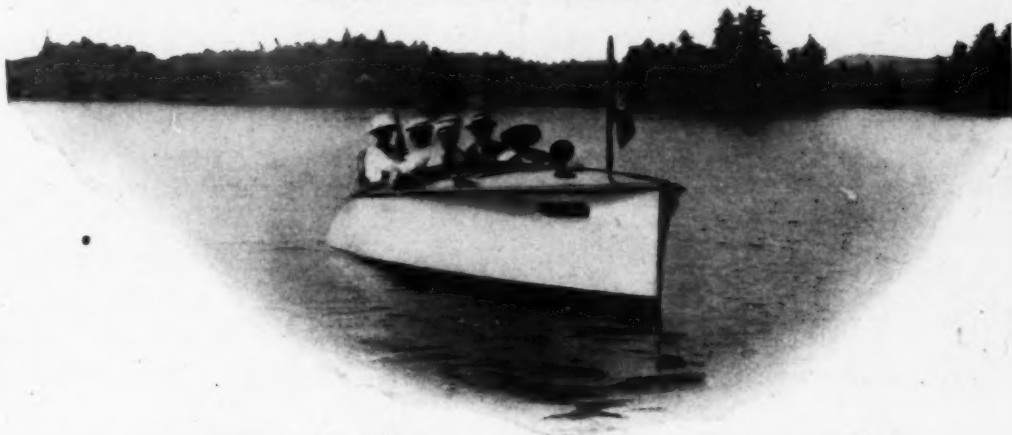
FORWARD CABIN



Raised Deck Cruiser  
Ready to Cruise  
**\$3500**

# FAY & BOWEN JUNIOR RUNABOUT

A Snappy 24-Footer—16 Miles Per Hour



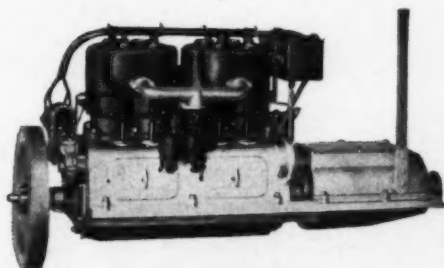
**Our boats combine luxury and service to the highest degree.**

We still have in stock for early delivery a very few each of our Junior Runabouts and our 30-ft. Raised Deck Runabouts.

At present we are sold out on our New Model 27-ft. Runabout, but are planning to have a limited number of this model for June delivery.

Our boats are powered only with Fay & Bowen engines and each boat is carefully tested on Seneca Lake under its own power before shipment.

Catalogue and Bulletins sent on request



## Fay & Bowen Engine Company

104 Lake Street

GENEVA, N. Y.

U. S. A.

NEW YORK: 44 Third Ave., at 10th St., Sutter Bros., Representatives.  
PHILADELPHIA: 116 Walnut St., Marine Equipment & Supply Co., Representatives.  
BOSTON: 100 Atlantic Ave., C. B. Hamblen & Co., Representatives.  
CANADA: Brockville, Ont., St. Lawrence Engine Co., Representatives.



# MoToR BoatinG Advertising Index

A		H		P	
A. C. Electrical Mfg. Co.	80	Hacker Boat Co., John L.	100	Palmer Bros.	71
Ajax Auto & Aero Sheet Metal Co., Inc.	64	Hall-Scott Motor Car Co.	97	Paragon Gear Works	3
Albany Boat Corp.	59	Hall Co., W. S.	55	Powell Co., The, Wm.	67
Aluminum Brazing Solder Co.	64	Hamblen & Co., C. B.	38	Purdy Boat Works	58
American Bosch Magneto Corp.	70	Hamilton Marine Eng. Exchange, Inc.	51		
Anderson Engine Co.	55	Hand, Jr., Wm. H.	55-77		
Arrow Motor Machine Co.	81	Hess Motor Co.	101		
Art Metal Works	58	Hyde Windlass Co.	104		
Astoria Mahogany Co.	106				
Atlantic-Pacific Mfg. Co.	58				
B		I		R	
Badger Motor Boat Co.	55	International Shipbuilding Corp.	128	Racine Boat Co. (Racine)	66
Barker Factory Co., The	70			Rajah Auto Supply Co.	87
Bissell Varnish Co., The	68			Red Wing Motor Co.	77
Blood Bros. Machine Co.	66			Regal Gasoline Engine Co.	65
Bowes, T. D.	55			Richardson Boat Co.	68
Boyce-Veeder Corp.	115			Ritchie & Sons, E. S.	73
Brooklyn Varnish Co.	117			Rochester Boat Works, Inc.	73
Brooks Mfg. Co.	64			Rock-A-Way Pump Co.	58
Brums, Kimball & Co., Inc.	53			Roebling's Sons Co., John A.	58
Buffalo Gasoline Motor Co.	1				
Burger Boat Co.	60				
C		J		S	
Caille Perfection Motor Co.	81	J. V. B. Engine Co.	103	Sanford, Harry W.	49-55
Cape Cod Power Dory Co.	55	Janney Steinmetz & Co.	110	Scripps Motor Co.	57
Carlisle & Finch Co., The	74	Jennings Co., H. H.	50	Sea Sled Co.	112-113
Carlyle Johnson Machine Co.	82	Jones, Frank Bowne	50	Seattle Standard Engine Mfg. Co.	66
Carpenter & Co., Geo. B.	70	Jordan Bros. Lumber Co.	55	Sherman, E. M.	55
Central Mfg. Co.	55			Sinclair Refining Co.	58
Champion Spark Plug Co.	102			Snow & Petrelli Mfg. Co.	85
Cincinnati Specialty Mfg. Co.	64			Sonora Phonograph Co., Inc.	60
Classified Advertisements	51-52-54			Southland Steamship Co.	68
Clay Engine Mfg. Co.	132			Spark-o-Gap Co.	62
Coe's Wrench Co.	107			Standard Gear Co.	121
Columbian Bronze Corp.	2			Standard Motor Construction Co.	2nd Cover
Commonwealth Motors Co.	60			Standard Oil Co.	58
Consolidated Shipbuilding Corp.	125			Stearns-McKay Mfg. Co.	66-72
Cory & Sons, Chas.	69			Sterling Engine Co.	3rd Cover
Cox & Stevens	44-55			Stewart Warner Corp.	58
Crane Puller Co.	74			Strong & Beckman	55
Curtiss Co., J. H.	69			Sutter Bros.	58
Cutting & Washington Radio Corp.	64				
D		K		T	
Darrow Steel Boat Co., F. H.	72	Kermath Mfg. Co.	98-99	Tams, Lemoine & Crane	46
Defoe Boat & Motor Works	60	Knox Motors Associates	67	Tebbo Yacht Basin Co.	4th Cover
Delco-Light Co.	61	Koban Mfg. Co.	110	Thompson Bros. Boat Mfg. Co.	58
Devoc & Reynolds Co., Inc.	126	Koven & Bro., L. O.	68	Tiebout, W. & J.	65
Doman Co., H. C.	84			Tillinghast Products Corp.	58
Dunn Motor Works	84			Toppam Boat Mfg. Co.	70
Du Pont de Nemours & Co., E. I.	108			Topping Bros.	124
Du Pont Motors, Inc.	66			Treiber Engine Co.	60-69
Durkee & Co., Inc., Chas. D.	64			Trego Motors Corp.	60
E		L		Trent Waterway Development Assn.	118
Elastic Composition & Repair Co.	86	Laughlin Co., The, Thos.	58	Trimount Rotary Power Co.	51
Eleo Co.	2nd Cover	Lawrence & Co., L.	95		
Electric Service Supplies Co.	68	Lewis Motor Mfg. Co., The	93		
Erickson & Co., Hubbard H.	66	Lipman Mfg. Co.	58		
Erickson Mfg. Co.	68	Lockwood-Ash Motor Co.	76		
Evinrude Motor Co.	105	Lobes Pump & Machinery Co.	60		
F		Lord, Frederick K.	55		
Farley Co., Edward P.	48	Luders Marine Construction Co.	76		
Fay & Bowen Engine Co.	120	Lunkenheimer Co., The	114		
Ferdinand & Co., L. W.	74				
Flash-O-Light Corp.	88				
Fremont Engine Co.	64				
Frisbie Motor Co.	122				
G		M		U	
Gardner & Co., Wm.	47	McClelland & Co., N. E., Ltd.	55	U. S. Vaporizer Co.	68
General Gas Electric Co.	88	Malone Hardware Co.	96	Universal Motor Boat Supply Co.	65
Gibbs Gas Engine Co.	123	Marine Compass Co.	60	Universal Motor Co.	83
Gielow, Henry J.	45	Massasoit Mfg. Co.	73		
Gies Gear Co.	55	Masten Co., Inc., G. H.	75		
Gill & Sons Forge & Mach. Wks., P. H.	58	Mathis Yacht Building Co.	75		
Gordon Propeller & Mfg. Co.	68	Maurus Motor Works	73		
Gray Motor Co.	111	Michigan Wheel Co.	69		
Gray & Prior Machine Co.	65	Miller Engine Co.	70		
Gray-Aldrich Co.	82	Moto Meter Co., Inc., The	79		
Great Lakes Boat Building Corp.	6	Mower, Chas. D.	55		
H		Mullins Body Corp.	94		
		Murray & Tregurtha Corp.	131		
I		N		V	
		National Life Preserver Co.	60	Valentine & Co.	43
		National Carbon Co.	90	Van Blerck Motor Co.	4
		Naval Architects & Yacht Brokers	55		
		Neponset Eng. & Mach. Co.	72		
		New Jersey Paint Works	109		
		New London Ship & Engine Co.	92		
		New Process Chemical Co.	66		
		New York Lubricating Oil Co.	89		
		New York Yacht, Launch & Engine Co.	119		
		Niagara Motors Corp.	91		
		Nickerson, L.	66		
		Nilson Yacht Bldg. Co., Inc., The	71		
		Nock, Frederick S.	55		
		Norma Co. of America	5		
J		O		W	
		Oakes & Dow Co.	67	Wasson Piston Ring Co.	63
		Oberdorfer Brass Co., M. L.	79	Watts, J. Murray	55
		Otto Metal Goods Corp., Wm. H.	67	Western Machinery Co.	80
K		P		Weston Electrical Instrument Co.	64
				Wicker-Kraft Co.	58
L		Q		Wilcox, Crittenden & Co.	72-78
				Willis Co., E. J.	86
M		R		Winston Engine Works	127
				Wireless Specialty Apparatus Co.	58
N		S		Wisconsin Motor Mfg. Co.	74
				Woolsey Paint & Color Works	71
O		T		World Battery Co.	60
				Wolverine Motor Works	71
P		U		Wyman-Gordon Co.	131
Q		V			
R		W			
S		X			
T		Y			
U		Z			
V					
W					
X					
Y					
Z					

# EFFICIENCY

The WYMAN-GORDON RECORD for efficiency can be read in the reorders of leading manufacturers; in the steady adherence of the most exacting customers year after year.

Our Engineering Department is at your service for the perfection of specially designed or unusually difficult forgings.

## WYMAN-GORDON

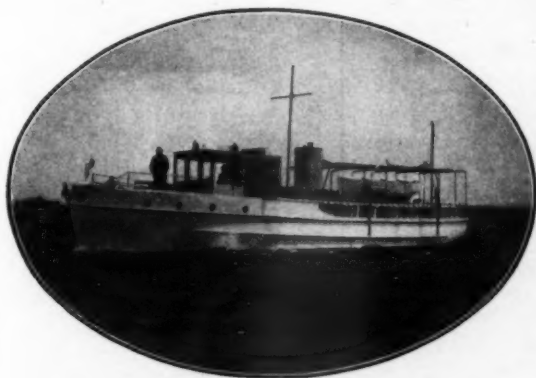
*The Crankshaft Makers*

Worcester, Mass.

Cleveland, Ohio

Chicago, Ill.

## "Victor" Leaves for Honduras



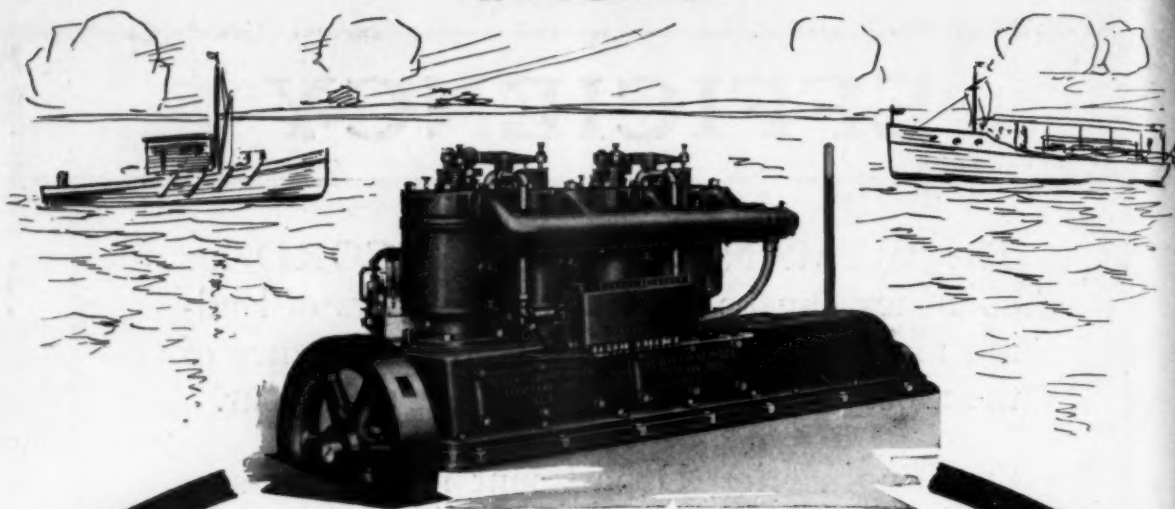
Reliability, sturdy power and economy being of prime importance in continual off-shore work, such as VICTOR will be called upon to do, the power plant selected was a pair of M. & T. Model E-4, 40 H.P., heavy duty engines. These turn a pair of 30x34 Hyde wheels at 470 R.P.M., giving a steady, all day speed of 12 miles per hour.

VICTOR was designed and built by the J. M. Densmore Co., Boston, for the Tela Railroad Co., of Honduras. She is making the 2500-mile outside trip to her new home under her own power. Stops will be made at Norfolk, Va., Mayport, Fla., and Key West, Fla., for fuel, oil and provisions.

VICTOR will be used as a passenger and mail carrier between Tela and Trujillo, Honduras, a distance of approximately 100 miles. She is a trim 70-footer, and has very comfortable cabin accommodations.

*You, too, can place reliance in  
"The Engine that Outlasts the Boat"*

**Murray & Tregurtha Corp.**  
Atlantic, Mass.



*"Where There's Work to Be Done"*

# HONEST CLAY

**Built for Hard Work, and Lots of it**

There's as much difference between Honest Clay and the average marine engine as there is between a team of big draft horses and an ordinary carriage nag. Honest Clay is built for hard work and lots of it. It's the truck horse of the marine engine field, a big brute with unlimited strength and endurance.

Whether you own a purely commercial craft like a tug or cargo boat, or a heavily built cruiser, you'll find this simple heavy duty 4-cycle engine the last word in economy, reliability and durability. Honest Clays have been built for twenty-two years, and we never heard of one wearing out. They offer a power investment that lasts a lifetime.

The latest Honest Clay, known as Model "R," is thoroughly up-to-date in design and perfectly standardized in construction. Built in nine sizes as follows:

Single Cylinder	6 H.P.	8 H.P.	10 H.P.
Two Cylinder	12 H.P.	16 H.P.	20 H.P.
Four Cylinder	25 H.P.	35 H.P.	50 H.P.

Write today for complete information and name of nearest agent.

**THE CLAY ENGINE MFG. CO.**

664 East 72nd Street

Cleveland, Ohio



